

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE <div style="text-align: center;">J</div>		PAGE OF PAGES <div style="text-align: center;">1   77</div>	
2. AMENDMENT/MODIFICATION NO. <div style="text-align: center;">0002</div>		3. EFFECTIVE DATE <div style="text-align: center;">31-Jan-2006</div>		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO.(If applicable)	
6. ISSUED BY USACE, CONTRACTING DIVISION ATTN: CEMVN-CT, ROOM 172 7400 LEAKE AVE. NEW ORLEANS LA 70118-3651		CODE W912P8		7. ADMINISTERED BY (If other than item 6) <div style="text-align: center; font-weight: bold;">See Item 6</div>		CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)				X		9A. AMENDMENT OF SOLICITATION NO. W912P8-06-R-0086	
				X		9B. DATED (SEE ITEM 11) 06-Jan-2006	
						10A. MOD. OF CONTRACT/ORDER NO.	
						10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE					
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended.  Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.							
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.							
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).							
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:							
D. OTHER (Specify type of modification and authority)							
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The above numbered solicitation for Lake Pontchartrain and Vicinity, New Orleans, LA, Hurricane Protection Project, T-Wall Repair 17th Street Canal Floodwall Breach is amended as follows:  The proposal due date is 4 February 06, 10:00 a.m. local time. Fax proposals to 504-681-2394 or emailed to gayle.e.rouse@mvn02.usace.army mil.							
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				TEL: EMAIL:			
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA  BY (Signature of Contracting Officer)		16C. DATE SIGNED  31-Jan-2006	

## SECTION SF 30 BLOCK 14 CONTINUATION PAGE

**SUMMARY OF CHANGES****Section 00010, BIDDING SCHEDULE**

- (a). Section 00010, Bidding Schedule. Delete Section 00010, "BIDDING SCHEDULE" in its entirety and replace with new Section 00010, "BIDDING SCHEDULE".

**Section 00130, PROPOSAL EVALUATION CRITERIA**

- (a). Section 00130, delete Section 00130, "PROPOSAL EVALUATION CRITERIA" in its entirety and replace with new Section 00130, "PROPOSAL EVALUATION CRITERIA"

**Section 00700, CONTRACT CLAUSES**

- (a) Section 00700, Page 13, Clause 52.211-10, revise to read

" The Contractor shall be required to

(a) commence work under this contract within 3 calendar days after the date the Contractor receives the notice to proceed,

(b) prosecute the work diligently, and

(c) complete the entire work ready for use not later than 180 calendar days after the date of receipt by him of notice to proceed. The time stated for completion shall not include final cleanup of the premises.

End of Clause

Note: The Contractor is hereby informed that time allowed for completion of work has been established as the shortest reasonable duration and that he shall make any and all provisions necessary (multiple crews, overtime, 24-hour operation, concurrent operations, etc.) to accomplish the work within the available time period."

- (b) Section 00700, Page 13, Clause 52.211-12, change liquidated damages from "\$1,530.00" to "\$5,525.00".

- (c) Section 00700, Page 115, Clause 252.236-7001, paragraph (a), revise to read,

"The Government will provide to the Contractor, without charge, five (5) sets of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Office."

**Section 01100, GENERAL PROVISIONS**

- (a) Section 01100, paragraph 3.b, add the phrase, "Notice of" before "Award of Contract" in the second sentence.

- (b) Section 01100, paragraph 17. Revise the first paragraph to read the following:

"The Contractor is hereby advised that another Government Contractor for the Lake Pontchartrain Hurricane Protection, 17<sup>th</sup> St. Canal, Interim Closure Structure, is allowed use of the Hammond

Highway bridge. The Contractor shall coordinate use of the bridge with the other Contractor such that no undue delays or disruptions to his ongoing operations are realized. Any difficulty in contacting or obtaining cooperation from the adjacent Contractor shall be brought to the immediate attention of the Contracting Officer's Representative. The Contractor shall submit an access plan to be reviewed and approved by the Contracting Officer to include, as a minimum, the following:"

(c) Section 01100, paragraph 17.d, add the phrase, "or adjacent to any existing flood protection" after the word "bridges".

(d) Section 01100, paragraph 24.d, revise the paragraph to read the following:

"d. The Contractor shall excavate to the grades shown or until a portion of the failed I-wall is uncovered. The location of each portion of the failed I-wall shall be documented (i.e. elevation, slope of wall face, location in relation to baseline). Upon documentation of the failed I wall, this portion of the I-wall, shall be removed to allow for the construction of the T-wall (all portions of the failed I-wall, as well as sandbags, crushed stone, steel cables and other unsuitable material shall be handled as per the contract specification). Only a portion of the failed I-walls within the excavation will require actual sampling of concrete, reinforcement, and sheet pile. The area will be within the 180 +/- linear foot of the excavation that will require dewatering. The Contractor shall be required to saw cut two (2) 4 ft. by 4 ft. reinforced concrete panels, retrieve reinforcing samples from selected failed I-wall sections and remove existing sheet pile (Hoesch 12 ) sections as directed by the Contracting Officer. All costs associated with sample recovery shall be covered under Selective Demolition."

#### **Section 01330, SUBMITTAL PROCEDURES**

(a) Section 01330, paragraph 3.2, delete this paragraph in its entirety and replace with the following:

"At the end of this Section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. Columns "c" thru "q" have been completed by the Government. The Contractor shall complete columns "a", "b", and "r" thru "w", and return four (4) completed copies to the Contracting Officer for approval within three (3) calendar days after Notice to Proceed for approval. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the Contract. The submittal register and the progress schedules shall be coordinated. The Contractor shall maintain an effective submittal control system by reviewing and updating the register every three (3) days and submitting updated copies to the Resident Engineer."

(b) Section 01330, paragraph 3.7 and 3.8. Add the following sentences at the end of the paragraphs:

"In order to expedite review of submittals, an electronic copy of all submittals shall be sent to the Contracting Officer Representative along with the "hard copies". Electronic files shall be in adobe acrobat (pdf), Microstation (dgn), Autocad (dwg), MS Word, or other format acceptable to the Contracting Officer Representative."

#### **Section 02200-EARTHWORK**

- (a). Section 02200, delete Section 02200, "EARTHWORK" in its entirety and replace with new Section 02200, "EARTHWORK".

#### **Section 02221-SELECTIVE DEMOLITION**

- (a) Section 02221, paragraph 1.1. In the third line, delete "house slabs, timber piling,".
- (b) Section 02221, paragraph 1.4. Delete sub-paragraph (2) in its entirety.
- (c) Section 02221, paragraph 3.1.1. At the end of the paragraph add the following sentence.

"Each sheet piling section is approximately 23.5 ft. in length."

- (d) Section 02221, paragraph 3.1.3. At the end of the paragraph add the following sentence.

"A typical section of the existing I-wall is attached at the end of this section."

#### **Section 02242-UNWATERING**

- (a) Section 02242. Delete Section 02242 "UNWATERING" in its entirety and replace with new Section 02242, "DEWATERING".

#### **Section 02252-TEMPORARY RETAINING STRUCTURES**

- (a) Section 02252. Delete Section 02252 "TEMPORARY RETAINING STRUCTURES" in its entirety and replace with new Section 02252, "TEMPORARY RETAINING STRUCTURES".

#### **Section 02315-STEEL H-PILES**

- (a) Section 02315. Delete Section 02315 "STEEL H-PILES" in its entirety and replace with new Section 02315, "STEEL H-PILES".

#### **Section 03308, CONCRETE FOR STRUCTURES**

- (a) Section 03308, paragraph 1.6.3. In the sixth sentence, delete "air content shall be between 4.5 percent and 7.5 percent." and replace with "air content shall be between 3.5 percent and 7.5 percent."

#### **Section 09940, PAINTING**

- (a) Section 09940, delete the Section 09940, "PAINTING" in its entirety and replace with new Section 09940, "PAINTING".

#### **(3). Contract Drawings.**

Delete drawings 3, 4, 6, 7, 8, 9, 10, 11, 13, 16, 17, and 18 of 26 in their entirety and replace with revised drawings 3, 4, 6, 7, 8, 9, 10, 11, 13, 16, 17, and 18 of 26.

## SECTION 00010 - BIDDING SCHEDULE

T-WALL REPAIR  
17th STREET CANAL FLOODWALL BREACH

Item	Description	Estimated Quantity	Unit	Unit Price	Total
0001	Mobilization and Demobilization	01	LS		
0002	Selective Demolition	01	LS		
0003	Pull & Salvage Existing AZ-26 Sheet Piles	410	EA		
0004	Clearing and Grubbing	01	LS		
0005	Non Granular Fill	13,700	CY		
0006	Excavation	36,300	CY		
0007	Steel H Piles	46,950	LF		
0008	Reinforced Concrete	01	LS		
0009	Piling, Steel Sheet, Type PZ 27	8,250	SF		
0010	Piling, Steel Sheet, Type PZ 35	36,050	SF		
0011	Temporary Retaining Structures	01	LS		
0012	Truck Wash Down Rack	01	LS		
0013	Fertilizing, Seeding and Mulching	01	LS		
0014	Miscellaneous Metalwork	01	LS		
0015	Construction Dewatering	01	LS		
0016	Granular Fill	20,000	CY		

**TOTAL**

Award will be made as a whole to one bidder.

NOTE 1: Bidders shall furnish unit prices for each item listed in the Schedule of bid items which require unit prices. If the bidder fails to insert a unit price in the appropriate blank for required item(s), but does furnish an extended total, or an estimated amount for such items), the Government shall deem the unit price to be the quotient obtained by dividing the extended amount for that line item by the quantity. IF A BIDDER OMITS BOTH THE UNIT PRICE AND THE EXTENDED TOTAL OR ESTIMATED AMOUNT FOR ANY ITEM, ITS BID SHALL BE DECLARED NON-RESPONSIVE AND THEREFORE INELIGIBLE FOR AWARD.

NOTE 2: THE NOTICE TO PROCEED (NTP): The successful bidder is advised that performance and payment bonds shall be submitted in accordance with the time frame in block 12B of SF 1442 after Notice of Award. The NTP will be issued immediately after verification of acceptable performance and payment bonds.

## SECTION 00010 - BIDDING SCHEDULE

### T-WALL REPAIR 17th STREET CANAL FLOODWALL BREACH

Within three (3) days after issuance of the NTP, the Contractor shall initiate a meeting to discuss the submittal process with the Area or Resident Engineer or his authorized representative. Physical work cannot start until the Accident Prevention Program, Contractor Quality Control Plan, and other submittals which may be required, have been submitted and approved and all preliminary meetings called for under the contract, have been conducted.

NOTE 3: Your response to this solicitation is limited to 15 pages, not including the Bid Schedule, Section 00600, Representations and Certifications, Bid Bond and Contracting Plan if required, with the font size no smaller than 10pt.

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## SECTION 00130 – PROPOSAL EVALUATION CRITERIA

### 1.1 SCOPE

This is a Request for Proposal (RFP). Proposals will be evaluated by a Source Selection Evaluation Board (SSEB) comprised of representatives of the Corps of Engineers. Award will be made to that offeror, determined by the Government, who can accomplish the requirements set forth in the RFP in a timely manner most advantageous to the Government considering both cost and non-cost factors. The Government reserves the right to award this contract to other than the lowest price offeror after consideration of all factors.

### 1.2 SOURCE SELECTION USING THE TRADE-OFF PROCESS

The Government will select the offer that represents the best value to the Government by using the trade-off process described in FAR Part 15. This process permits tradeoffs between price and technical merit/quality and allows the Government to accept other than the lowest priced offer. The award decision will be based on a comparative assessment of proposals against all source selection criteria in the solicitation.

### 1.3 RELATIVE IMPORTANCE OF PRICE TO THE TECHNICAL EVALUATION FACTORS

All non-cost (i.e., technical) evaluation factors, when combined are more important than cost or price. The Government is concerned with striking the most advantageous balance between Technical Merit (i.e., quality) and cost to the Government (i.e., price). Where competing technical proposals are determined to be substantially equal, price could become the tiebreaker.

### 1.4 TECHNICAL/QUALITY EVALUATION

The Government will evaluate each of the six non-cost factors and rate the proposals. Non-cost factors are not all equal in importance. The following terminology is used to describe the relative importance of each non-cost factor:

(1) MORE SIGNIFICANT. This factor is of greater value than other factors. It is approximately twice as much as the next valued factor.

(2) LESS SIGNIFICANT. This factor is approximately one-half (1/2) the value of the factor rated ahead of it.

(3) COMPARATIVELY EQUAL. The value is nearly the same as another factor; any difference is slight and unimportant.

## 1.5 NON-COST FACTORS

The non-cost factors are listed in descending order of relative importance. Factors 1 and 2 are comparatively equal and are more significant when compared to factor 3. Factor 4 is less significant than 3.

(1) Past Performance. Offerors will be evaluated on the quality of similar work performed in the last TEN (10) YEARS using the evidence provided by the offeror and other sources for the prime and all subcontractors. Projects that are similar in scope, complexity and magnitude will provide better proof of the Offeror's capabilities. The Government reserves the right to check any or all cited references to verify supplied information and to assess owner satisfaction. The Government may also use other tools to gather information regarding an Offeror's qualifications and past performance. The offeror should provide information on any problems encountered on the identified contracts and the corrective actions taken. Offerors with no relevant performance history will receive a neutral rating in this factor.

(2) Technical Approach. The offeror shall provide plans and methodology in the form of a network analysis or critical path management tool used to demonstrate the construction of the flood protection system to show the relationship between material procurement, fabrication, site work, and completion on time. The network analysis should address the type, quantity, and location of equipment that will be used to construct the flood protection system. The offeror shall submit agreements that they have with other firms to subcontract with for labor, materials and equipment which demonstrates the offeror's ability to complete the job on time. The offeror's proposal shall identify the availability, and any agreements with suppliers of key materials or equipment. The proposal shall identify the location and anticipated arrival date of key materials and equipment to the job site. The proposal shall also address the sources and availability of construction personnel.

The offeror is requested to submit an additional network analysis prepared with regard to being exempt from the Buy American Act, in the event that the Buy American Act may be waived for this construction.

(3) Personnel Experience. The Contractor shall provide qualifications (to include resume, years of experience in position, list of similar projects, etc.) of key personnel for both prime and sub-contractors. The Contractor and its' subcontractors shall include to the maximum extent possible hiring of local workforce, to include names and local addresses of all such personnel.

(4) Project Management. The Offeror shall provide a detailed construction management plan to include how lost construction days will be made up to best meet the contract completion date in the face of unforeseen delays.

## (5) Small/Small Disadvantage Participation

### 1.6 RFP SUBMITTALS

Offeror's submitting proposals for this project should limit submissions to data essential for evaluation of proposals so that a minimum of time and monies will have been expended in preparing information required herein. However, in order to be effectively and equitably evaluated, the proposals must include information sufficiently detailed to clearly describe the Offeror's past performance, technical approach, personnel experience, and management capabilities to successfully complete the project. Your response to this solicitation is limited to fifteen (15) pages, not including the Bid Schedule, Section 00600, Representations and Certifications, Bid Bond and Subcontracting Plan if required, with the font size no smaller than 10pt.

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## SECTION 02200 - EARTHWORK

### PART 1 GENERAL

#### 1.1 SCOPE

The work covered by this section consists of excavation (excluding items covered in Section 02221) of all material required to construct the inverted "T-wall" and berms and backfill for the limits as shown on the drawings.

#### 1.2 RELATED SECTIONS

Section 01452 – ENVIRONMENTAL PROTECTION

Section 02413 – TEMPORARY COFFERDAM

#### 1.3 REFERENCES

The following publications of the issues listed below but referred to thereafter by basic designation only form a part of this specification to the extent indicated by the references thereto or as required.

#### AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 180	(1997) Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and an 457 mm (18-in) Drop
AASHTO T 224	(1996) Correction for Coarse Particles in the Soil Compaction Test

#### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 136	(2001) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 422	(2002) Particle-Size Analysis of Soils
ASTM D 698	(2000ae1) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft.)
ASTM D 1140	(2000) Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve

ASTM D 1556	(2000) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2002e1) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft.)
ASTM D 2167	(2001) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2487	(2000) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(2004) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 2937	(2000e1) Density of Soil in Place by the Drive-Cylinder Method
ASTM D 2974	(2000) Moisture, Ash and Organic Matter of Peat and Other Organic Soils
ASTM D 3017	(2004) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 3740	(2004) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM D 4318	(2000) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

## 1.4 MEASUREMENT

### 1.4.1 Excavation, and Non-Granular Material

Measurement for excavation, granular and non-granular fill material will be made by the cubic yard, computed by the average end area method from cross sections taken before and after the excavation and backfill operations. The volume to be paid for will be the number of cubic yards of material measured in its original position and removed from the excavation and borrow areas when the material is acceptably utilized or disposed of as herein specified. The measurements will include authorized excavation of unsatisfactory subgrade materials. The measurement will not include the volume of subgrade material or other material that is scarified or plowed and reused in-place, and will not include the volume excavated without authorization or the volume of any material used for purposes other than directed. The measurement will not include the

volume of any excavation performed prior to the taking of elevations and measurements of the undisturbed grade.

## 1.5 PAYMENT

Payment will be made at the applicable contract unit price per cubic yard for "Excavation," "Granular Fill" and "Non-Granular Fill". Price and payment shall constitute full compensation for all labor, equipment, tools, supplies, hauling, disposal and incidentals, including surface preparation of excavated surface for backfill, moisture content control, and all required testing necessary to complete the work.

## 1.6 DEFINITIONS

### 1.6.1 Suitable Materials

Suitable non-granular fill materials shall comprise any materials classified by ASTM D 2487 as SC, CL and CH. Materials classified as GM and SM will be identified as granular only when the fines are non-plastic. Testing required for classifying materials shall be in accordance with ASTM C 136, ASTM D 422, ASTM D 698, ASTM D 1140, ASTM D 2974 and ASTM D 4318. Suitable granular materials include materials classified in ASTM D 2487 as SW and shall be free of all weed, roots, clay lumps and any other deleterious materials with at least 75 percent passing the No. 4 sieve and not more than 15 percent passing the No. 200 sieve.

### 1.6.2 Unsuitable Materials

Materials which do not comply with the requirements for suitable materials are unsuitable. Unsuitable materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as suitable which contains root and other organic matter or frozen material. The Contracting Officer shall be notified of any contaminated materials.

### 1.6.3 Excavation

Excavation consists of removal and disposal of all material conflicting with the placement of the new work.

Excavation shall be finished to reasonably uniform surfaces, and shall be conducted so that material and construction outside the limits of excavation is not disturbed. Adjacent material and construction affected during excavation operations shall be repaired or replaced as directed by the Contracting Officer at no additional cost to the Government.

### 1.6.4 Unauthorized Excavation

Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Contracting Officer. Unauthorized excavation and required backfill as well as any other remedial directed by the Contracting Officer, shall be at the Contractor's expense.

#### 1.6.5 Degree of Compaction

Non-granular fill shall be placed in uniform lifts not exceeding 8 inches in thickness and compacted to 95% of the maximum dry density at within plus 5 to minus 3 percent of optimum moisture content as determined in accordance with the Standard Proctor density Test ASTM D-698.

Granular fill: Placement in wet excavation – contractor shall place granular fill in the wet and allow to self compact. Dry Placement – contractor shall place granular fill in uniform lifts not exceeding 12 inches in thickness and compacted to at least 95 percent laboratory maximum density (dry) for granular materials.

#### 1.7 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330:

##### SD-03 Product Data

Earthwork; G

Procedure and location for disposal of unused suitable material. Proposed source of borrow material.

##### SD-06 Test Reports

Testing; G

Within 24 hours of conclusion of physical tests, 5 copies of test results, including calibration curves and results of calibration tests.

##### SD-07 Certificates

Testing; G

Qualifications of the commercial testing laboratory or Contractor's testing facilities.

#### 1.8 SUBSURFACE DATA

Subsurface soil boring logs are shown on the drawings. This data represent the subsurface information available; however, variations may exist in the subsurface between boring locations.

## 1.9 CLASSIFICATION OF EXCAVATION

All excavation will be designated as General Excavation.

## 1.10 BLASTING.

Blasting will not be permitted.

## 1.11 UTILIZATION OF EXCAVATED MATERIALS

Unsuitable materials removed from excavations shall become the property of the Contractor and shall be removed from the site. Suitable material removed from excavations shall be used, insofar as practicable, in the construction of fills, subgrades, access roads, shoulders, bedding (as backfill), and for similar purposes. No suitable excavated material shall be wasted without specific written authorization. Suitable material authorized to be wasted shall be disposed of in designated areas approved for surplus material storage or designated waste areas as directed. Coarse rock from excavations may be stockpiled and used for protecting against erosion. No excavated material shall be disposed of to obstruct local drainage, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

## 1.12 MOISTURE CONTROL

The Contractor shall perform the necessary work and testing to control the moisture content of the fill material and bring it within the range specified in paragraph 1.6.5.

If the material is too wet, it shall be either stockpiled and allowed to drain and/or the wet material shall be processed by disking and harrowing, if necessary, and permitted to dry until the moisture content is reduced sufficiently. If the material is too dry, it shall either be pre-wet at the source area, or sufficient moisture shall be uniformly distributed in each layer before compacting.

If the top or contact surface of a partial fill section becomes too dry to permit suitable bond between this surface and the additional fill to be placed, then the Contractor shall loosen the dried material by scarifying, disking, or other approved methods, and shall re-compact the layer as specified in paragraph 3.6.

If the top or contact surface of a partial fill section becomes too wet to permit suitable bond between this surface and the additional fill to be placed, then the Contractor shall scarify the surface, assisted by disking or harrowing as needed, and permit the material to dry. The material shall be re-compact as specified in paragraph 3.6.

## 1.13 QUALITY CONTROL

### 1.13.1 General

The Contractor shall establish and maintain quality control for embankment construction operations to assure compliance with contract requirements, and maintain records of his/her quality control for all construction operations including but not limited to the following:

- (1) Equipment. Type, size, and suitability for construction of the prescribed work.
- (2) Foundation Preparation. Surface preparation as required in advance of backfill and embankment construction, and during fill placement when necessary, stockpiles, drainage of foundation and partially completed fill.
- (3) Materials. Suitability.
- (4) Construction. Layout, maintaining existing drainage, moisture control, thickness of layers, spreading and compacting.
- (5) Grade and Cross Section. Width, side slopes, and grades.
- (6) Grade Tolerances. Check fills to determine if placement conforms to prescribed grade and cross section.
- (7) Control Testing.

(a) Contractor Testing. The Contractor shall perform all control testing such as soil classification, moisture content, control compaction curves, and in-place density. The Contractor shall perform as a minimum, the specified number of each of the tests to demonstrate to the satisfaction of the Contracting Officer that the specifications are in compliance. Testing shall be performed by a Government approved testing agency or organization. Criteria used for obtaining Government approval shall be in accordance with ASTM D 3740. Tests performed shall be pursued in such a manner that the results are obtained and furnished to the Government within 24 hours. No additional payment will be made for control testing required in this paragraph. All cost in connection therewith shall be included in all associated bid items requiring density testing. The following tests are required to provide adequate control:

1. Soil Classification Tests. Determination of soil classification shall be in accordance with the ASTM D 2487 Unified Soil Classification System. Atterberg Limits Test required for soil classification shall be performed in accordance with ASTM D 4318. One Atterberg test

shall be obtained from the sample material used for each control compaction curve and one shall be obtained from the sample material used for every second (2<sup>nd</sup>) in-place density test. If the Nuclear Method is used, the material to be tested shall come from within a radius of 12 inches of the center of the in-place density test site. The soil Classification obtained from in-place density test will serve as the basis for determining the applicable control compaction curves.

2. Control Compaction Curves - Compacted Fills. Control compaction curves shall be established in accordance with ASTM D 698 (Standard Proctor Density Tests). Two control compaction curves will be required for each type of random material from each source. Where construction operations result in blending of several types of material prior to or during fill placement within the embankment design sections, two control compaction curves will be required for each resulting blend of material and will be utilized in lieu of those required for the "unblended materials". The average of the two tests shall be the controlling optimum moisture content and maximum density. This test shall be used as a control test to determine the control curve for all density determinations for all materials in this section.

3. In-Place Density Tests. In-place density tests for compacted backfill shall be made in accordance with ASTM D 2922, and shall be made at a frequency of a minimum of one density test per shift. If more than 250 linear feet of backfill is placed in one day, then one additional density test shall be taken for each 250 foot reach. The location of the test shall be representative of the area being tested. The result of each in-place density test shall be furnished to the Government prior to placement of additional backfill in the area represented by the test.

4. Moisture Content Tests. Moisture content tests at each density test location shall be taken to assure compliance with requirements for backfills. Determination of moisture content shall be performed in accordance with ASTM D 2216 or alternately by ASTM D 3017.

(b) Government Testing. As a control, the Government will perform assurance and check tests for maximum density for all materials in accordance with ASTM D 698. If values for maximum density as determined by the Contractor and as determined by the Government do not agree, the Government will determine the values to be used. The Government will also perform check and assurance testing of the other control testing required by the Contractor.

### 1.13.2 Reporting

The original and two copies of these records of inspections and tests, as well as the records of corrective action taken, shall be furnished the Government daily. Format of the report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

## PART 2 PRODUCTS

### 2.1 BACKFILL MATERIAL

#### 2.1.1 Non-Granular Material

Non-granular fill material shall have a maximum organic content of 15 percent, maximum liquid limit (LL) of 85 and a maximum plastic index (PI) of 60. Non-granular Fill shall be Contractor furnished.

#### 2.1.2 Granular Material

Granular fill material shall have a less than 10% fines passing the No. 200 Sieve and free of clay lumps and all other deleterious materials. Granular Fill shall be Contractor furnished.

## PART 3 EXECUTION

### 3.1 EXCAVATION

The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. All surfaces to receive backfill shall be cleared and proof-rolled. Natural ground composed of unsuitable material shall be removed to a depth of 6 inches, or more if required to remove obstructions and replaced with suitable backfill material as specified herein. Grading shall be in conformity with the typical sections shown and the tolerances specified in paragraph

#### 3.1.1 Suitable Excavated Materials

Suitable excavated materials shall be transported to and placed in fill or embankment within the limits of the work. Unsuitable materials encountered within the limits of the work shall be excavated below grade and replaced with suitable materials as directed. Such excavated material and the suitable material ordered as replacement shall be included in excavation. Surplus suitable excavated material not required for fill shall be disposed of in areas approved for surplus material storage or designated waste areas. Unsuitable excavated material shall be hauled off site and legally disposed of. During construction, excavation and fill shall be performed in a manner

and sequence that will provide proper drainage at all times. Material required for fill in excess of that produced by excavation within the grading limits shall be excavated from Contractor furnished borrow areas as specified herein.

### 3.1.2 Structures

Excavations shall be made to the lines, grades, and elevations shown, or as directed. Trenches and foundation pits shall be of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Where pile foundations are to be used, the excavation of each pit shall be stopped at an elevation 1 foot above the base of the footing, as specified, before piles are driven. After the pile driving has been completed, loose and displaced material shall be removed and excavation completed, leaving a level and stable surface to receive the concrete.

## 3.2 SELECTION OF BORROW MATERIAL

Borrow material shall be selected to meet the requirements and conditions of the particular fill for which it is to be used. Borrow material shall be obtained from approved sources. Borrow material from approved sources on Government-controlled land may be obtained without payment of royalties. Unless specifically provided, no borrow shall be obtained within the limits of the project site without prior written approval. Necessary clearing, grubbing, and satisfactory drainage of borrow pits and the disposal of debris thereon shall be considered related operations to the borrow excavation.

## 3.3 CONTRACTOR-FURNISHED BORROW AREAS

### 3.3.1 General

The Contractor shall use borrow areas previously approved and permitted by the government. All costs arising or growing out of the use of Contractor-furnished borrow areas shall be borne by the Contractor. The Contracting Officer will exercise strict quality control to assure that the Contractor-furnished borrow sites are of a size sufficient only to complete work covered under this contract. The character of the material therein, as indicated by tests of soil samples performed by an approved independent laboratory must be equal to or better than the material requirements herein. The Contractor shall submit the information described in paragraphs 3.3.4 and 3.3.5 to the Contracting Officer for review and approval.

### 3.3.2 Time Extensions

No time extension to the contract completion date will be granted to the Contractor for delays incurred in obtaining Contractor-furnished borrow areas. The Contractor shall be solely responsible for any and all damages, claims for damages, and liability of any

nature whatsoever arising from or growing out of the use of Contractor furnished borrow areas.

### 3.3.3 Approval

Approval of the location and dimensions of the Contractor-furnished borrow area shall neither relieve the Contractor from its obligation to furnish satisfactory material to the project nor commit the Government to the acceptance of the responsibility for the character, quantity, or availability of material in Contractor-furnished borrow areas.

### 3.3.4 Submittal Package Requirements

The following information shall be submitted by the Contractor in a single, complete package in quadruplicate. The Contractor shall allow a minimum of ten (10) days, after the receipt of the package, for the Government's review, processing, and approval.

- (1) Reserved.
- (2) Zoning classification.
- (3) Louisiana Department of Transportation and Development (LADOTD) permits or approvals.
- (4) Maps as follows:
  - (a) Location and Direction map.
  - (b) Topographic map(s) with scale of 1:24,000.
  - (c) Layout map with dimensions and property reference points.
  - (d) Soil boring location map.
- (5) Plotted cross sections.
- (6) Soil boring logs and report, and laboratory soil classification test and Atterberg test results.
- (7) Cultural resources investigation report.
- (8) Certified agronomist test results.
- (9) Excavation plan.
- (10) Environmental protection plan.

### 3.3.5 Submittal Package Requirements in Detail

#### 3.3.5.1 Reserved

#### 3.3.5.2 Zoning Classification

Written evidence that the property intended for use as an alternate borrow area contains the proper zoning classification that will allow the Contractor to excavate the property and use it as a borrow area. This evidence shall consist of a letter from the local land zoning office stating the zoning classification of the proposed alternate borrow area.

#### 3.3.5.3 Maps

The following maps shall be provided:

- (1) A map of the general area giving detailed instructions on how to get to the alternate borrow area from the nearest major highway.
- (2) A topographic map(s) (quadrangle) with a scale of 1:24,000 with the location of the borrow area superimposed.
- (3) A layout map of the borrow area showing the dimensions of the borrow area, locations of soil borings, and reference points tied to the property boundaries. The map shall show the location and dimensions of any haul road that exists or is to be constructed to help the Contractor in its hauling operation. The map shall also show the location and dimensions of any protection dikes which will help the Contractor drain and keep the borrow area dry.
- (4) The most recent parish surface soils map with the location of the borrow area superimposed.

#### 3.3.5.4 Plotted Cross Sections

Plotted cross sections of the alternate borrow area in sufficient quantity (maximum of 300-ft. intervals) to give a true representation of the topography of the alternate borrows area. The proposed excavation lines shall be superimposed on these cross sections, so that an accurate computation of the available material can be made.

#### 3.3.5.5 Soil Boring Logs and Report, and Laboratory Soil Classification Test Results

Soil borings of the Contractor- furnished borrow area shall be provided by the Contractor to a depth of at least 5 feet below the depth of planned excavation. The borings shall be at a spacing that will adequately define the material in the pit but in

no case spaced greater than 500 feet on centers. Borings along the proposed borrow area boundary shall be located no farther than one-half of the boring spacing in the pit or 250 feet, whichever is less. Soil samples from these borings shall be classified in accordance with the Unified Soil Classification system and shall include water content determinations based on the dry weight of the representative soil samples, taken at each 2.5 feet of depth of the boring or change in strata. These representative soil samples shall be submitted to an approved independent laboratory, properly labeled and sealed in an airtight container to preserve the natural water content for laboratory determination. The resulting classification and water content determination and borrow area boring logs shall be submitted to the Contracting Officer for determination of the suitability of the material for construction use. Soil boring locations shall be shown on the layout map required by paragraph 3.6.5.3(3).

#### 3.3.5.5.1 Permeability

If examination of the submitted soil samples confirms that the material in the Contractor-furnished borrow area is as or less permeable than the material in the Government-furnished borrow area, the Contractor-furnished borrow material may be used provided the quality of the material is otherwise satisfactory. However, if the material in the Contractor-furnished borrow area is more permeable than material in the Government-furnished borrow area indicated, the Contractor-furnished borrow material may be used in landside berms provided the quality of the material is otherwise satisfactory, but shall not be used in levee embankment or riverside berms regardless of its quality.

#### 3.3.5.6 Cultural Resources Investigation Report

A written report by a professional archeologist which meets the report requirements of the Louisiana Division of Archeology and explains the results of the field investigation made by him of the Contractor-furnished borrow area. The field investigation shall consist of a comprehensive inspection of the proposed borrow area, including access roads, and shall be adequate enough to determine if any cultural resources that are eligible for listing in the National Register will be impacted. This report will be evaluated by the Contracting Officer and the Corps' cultural resources specialists to determine the adequacy of the cultural resources investigation to discharge the Corps' cultural resource responsibilities. The Corps' cultural resource specialist will consult with the Louisiana State Historic Preservation Officer (SHPO) and all other required agencies. All costs of mitigating adverse effects to cultural resources, if required, shall be borne by the Contractor. It is the responsibility of the contractor to ensure that significant cultural resources are not impacted by its proposed excavation.

#### 3.3.5.7 Certified Agronomist Test Results

Written results of tests performed by a certified public or private agronomist to prescribe whatever modifications, if any, will have to be made to Section 02922, "FERTILIZING AND SEEDING, AND MULCHING" to insure a satisfactory growth of

grass. The substitute borrow area material shall be free of deleterious chemicals which would impede the satisfactory growth of grass. All costs associated with the testing of the alternate borrow area material and modifying the Fertilizing, and Seeding and Mulching specification to insure an adequate growth of grass shall be borne by the contractor.

#### 3.3.5.8 Excavation Plan

The Contractor shall provide the Contracting Officer a plan for clearing, stripping, and excavating materials from the proposed Contractor-furnished borrow area. In its plan, the Contractor shall show work areas, stockpile areas, etc, all within its leased or owned property boundaries. The Contractor shall not work or move material outside the boundaries of the approved limits of its borrow area. The Contractor shall indicate in writing and show on its layout plans details of the following:

- (1) A stockpile plan for cleared and stripped material and debris to include disposal areas.
- (2) The locations for disposal of wasted material discovered in the borrow area. Location of any haul roads constructed to help the Contractor in its hauling operations.
- (3) A plan for stockpiling embankment material before it is transported to the project site to include locations, stockpile heights, slopes, and limits.
- (4) The method and route for transporting the excavated material from the Contractor-furnished borrow area to the project site.
- (5) The proposed methods for draining and keeping dry during excavation the borrow area excavated under this contract, including any protection dikes constructed to alleviate drainage problems.
- (6) A complete list of excavation and transportation equipment planned for use in its operations.
- (7) The Contractor's proposed sequence of excavating the borrow area showing starting and ending work locations.
- (8) A list of the permits required and issuing office.

#### 3.3.5.9 Environmental Protection Plan

A proposal for implementing Section 01352 of this contract insofar as that section applies to borrow areas.

#### 3.3.6 Government Performed Environmental Assessment

The Government is required to perform an environmental assessment on all new proposed borrow areas without regard to the source. An environmental assessment requires a minimum of ten (10) days for review, processing, and approval time by the Government. Before the Government will commence the environmental assessment, the contractor must submit all of the above items as a single, complete package. The Contracting Officer reserves the right to disapprove the use of Contractor-furnished borrow areas located in woodlands or wetlands.)

### 3.4 BACKFILL

Each layer of backfill shall be placed in accordance with paragraph 1.6.5 of this section.

Ground surface on which backfill is to be placed shall be prepared as specified in paragraph 3.4.

Compaction shall be accomplished by sheepsfoot rollers, cultipacker, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

### 3.5 PREPARATION OF GROUND SURFACE FOR BACKFILL MATERIAL

#### 3.5.1 General Requirements

Ground surface on which fill is to be placed shall be stripped of live, dead, or decayed vegetation, rubbish, debris, and other unsuitable material; plowed, disked, or otherwise broken up to a depth of 12 inches pulverized; moistened or aerated as necessary; thoroughly mixed; and compacted to at least 90 percent laboratory maximum density (dry) for cohesive materials as determined by ASTM D 698. Surface water and subsurface, or ground, water shall be prevented from flowing into or accumulating in the excavations. Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment. The prepared ground surface shall be scarified and moistened or aerated as required just prior to placement of embankment materials to assure adequate bond between embankment material and the prepared ground surface.

#### 3.5.2 Frozen Material

Backfill shall not be placed on a foundation which contains frozen material, or which has been subjected to freeze-thaw action. This prohibition encompasses all foundation types, including the natural ground, all prepared subgrades and all layers of previously placed and compacted earth fill which become the foundations for successive layers of earth fill. All material that freezes or has been subjected to freeze-thaw action during the construction work, or during periods of temporary shutdowns, such as, but not limited to, nights, holidays, weekends, winter shutdowns,

or earthwork operations, shall be removed to a depth that is acceptable to the Contracting Officer and replaced with new material. Alternatively, the material will be thawed, dried, reworked, and recompact to the specified criteria before additional material is placed. The Contracting Officer will determine when placement of fill shall cease due to cold weather. The Contracting Officer may elect to use average daily air temperatures, and/or physical observation of the soils for his determination. Backfill material shall not contain frozen clumps of soil, snow, or ice.

### 3.6 FINISHING

The surface of excavations, embankments, and subgrades shall be finished to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown. The degree of finish for graded areas shall be within 0.3 foot of the grades and elevations indicated except that the degree of finish for subgrades shall be specified in paragraph 3.7.

### 3.7 SUBGRADE AND EMBANKMENT PROTECTION

During construction, embankments and excavations shall be kept shaped and drained. Ditches and drains along subgrade shall be maintained to drain effectively at all times. The finished subgrade shall not be disturbed by traffic or other operation and shall be protected and maintained by the Contractor in a satisfactory condition until ballast, subbase, base, or embankment is placed. The storage or stockpiling of materials on the finished subgrade will not be permitted.

### 3.8 SETTLEMENT OF FOUNDATION

#### 3.8.1 Additional Fill

Should the Contractor desire payment for placing additional fill due to foundation settlement during construction, he shall furnish and install settlement gages for determination of such settlement. Prior to placing of fill material, each gage shall be installed on the prepared foundation of the location shown on the applicable typical cross section at intervals not to exceed 100 feet, and shall be maintained during construction. Settlement gages at each end of the work shall be placed within 50 ft. of the upper and lower limits of the work. Settlement plates shall be located where original cross sections have been taken. Each gage shall be set on a smooth level surface on undisturbed ground or top of the geotextile where applicable. Leveling of gage beds shall be accomplished by removing the minimum amount of earth necessary to produce an even foundation and in such manner that the density of gage beds will remain at the same density as the undisturbed adjacent ground. Burying the settlement gage below the existing ground surface will not be permitted. Leveling of gage beds by the addition of fill will not be permitted. The type of gage used shall be as shown on the drawings. The Contractor shall determine elevations of the gages prior to placing of fill material and again within 72 hours after compliance cross sections have been taken over the completed embankment at the sites of the gages to determine settlement of the

foundation. The 72-hour requirement is an absolute pre-condition for payment for settlement of the foundation. The initial and final elevation of the gages will be verified by the Contracting Officer's representative at the site. Measurement of additional fill material placed due to settlement of the foundation will be as stated in paragraph 1.3. Installation of and measurement on gages shall be at the option and expense of the Contractor. When the settlement gage is located by boring with rotary drill, the drill hole shall be backfilled with embankment material and tamped throughout. At the Contractor's option, the drill hole may be filled with a neat cement-grout trimmed from the bottom of the drill hole to the top of the drill hole. If a rotary drill is used in locating the settlement gages placed on top of the geotextile, it shall be advanced no closer than two feet of the anticipated settlement gage elevation. The elevation of the settlement gage shall then be determined with a sounding rod.

### 3.8.2 Failures

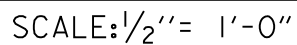
In clearly established cases of sudden failure of the foundation, (1) where no provision has been made for the measurement of settlement, there will be no measurement made for settlement; (2) where settlement measuring devices have been installed, but the nature of settlement is such as to destroy their utility, the settlement shall be determined from the average elevation of the nearest surviving settlement plates on each side of the failure or, if necessary, the settlement plate nearest the failure.

### 3.8.3 Postpone Operations

Where settlement of the foundation develops to such an extent as to make it inadvisable, in the opinion of the Contracting Officer, to continue to add material, and advisable in its opinion, to postpone until a considerably later date all attempts to bring that portion of the embankment to full grade and cross section, the Contracting Officer shall have the right to omit further work on that portion of the embankment and to accept it as completed.

### 3.8.4 Slides

Should a slide occur in any part of the embankment during its construction, or after its completion, but prior to its acceptance, the Contractor shall, upon written order of the Contracting Officer, either cut out and remove the slide from the embankment and then rebuild that portion of the embankment, or construct a stability berm of such dimension, and placed in such manner, as the Contracting Officer shall prescribe. In case the slide is caused through fault of the Contractor, the foregoing operations shall be performed at no additional cost to the Government. In case the slide is not the fault of the Contractor, the repair shall be made by an equitable adjustment under the Section 00700 "CHANGES" clause of the contract. The method of slide correction will be determined by the Contracting Officer.



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## SECTION 02242 - DEWATERING

### PART 1 GENERAL

#### 1.1 SCOPE

The work provided for herein consists of furnishing all plant, equipment, labor and materials; performing all operations required for designing, furnishing, installing, and operating a system to dewater the excavated area or area inside of temporary retaining structures where required; maintaining these areas free from water during construction operations; rewatering the area under controlled conditions at the termination of the dewatering and removing the system.

#### 1.2 MEASUREMENT AND PAYMENT

No separate measurement will be made for dewatering. Payment for dewatering will be made at the contract lump sum price for "Construction Dewatering". Price and payment shall constitute full compensation for furnishing all plant, labor, material, and equipment; designing, furnishing, installing, maintaining, operating, flooding, rewatering, and removing the dewatering facilities; maintaining the dewatered area; and all work incidental thereto including construction of dikes, sumps, installation of wellpoints, jet eductors, wells, pumps, piezometers, removal of wellpoints, jet eductors, wells, and piezometers, plugging holes, maintaining protection dikes and closure dams, protection of slopes and all other work which may be necessary to accomplish the specified dewatering results and which is not specified to be paid for separately. Fifty percent of the lump sum price will be paid when installation of the dewatering system has been completed, tested, evaluated, and the piezometric level of the ground water has been lowered to the limits and elevations as specified. Forty percent of the lump-sum price will be prorated on the basis of the estimated number of months that dewatering system will be required and will be paid monthly. The remaining 10 percent of the lump-sum price will be paid when the dewatering system has been removed as required herein and cleanup in connection therewith has been completed.

#### 1.3 DEFINITIONS

(1) Dewatering defines the lowering of the ground water below the slopes and bottom of the excavation to ensure dry, firm working conditions and the reduction to safe levels of any hydrostatic uplift pressures in any confined foundation strata and/or aquifers which is necessary to ensure the stability and integrity of the foundation.

(2) Dewatering system defines the machinery, equipment, and appurtenances necessary for and related to the accomplishment of dewatering, and the collection and disposal of all surface water within the protected area.

(3) Flooding of the excavation is defined as the controlled process of filling the excavation with water to a specified elevation and at a specified rate.

(4) Unwatering is defined as the process of removing all water within an excavation.

(5) Rewatering is defined as the controlled process of placing water in the completed structure and/or excavation to its naturally occurring elevation at a specified rate when the construction is completed and the dewatering system is no longer required.

#### 1.4 DESIGNER REQUIREMENTS

The dewatering system and all modifications to the initial dewatering system shall be designed and stamped by a Registered Professional Engineer and submitted for review and approval. The Registered Professional Engineer shall be present at the Contractor Quality Control preparatory and initial inspections. The Contractor shall, as a part of the Quality Control plan, furnish a signed statement by the design Professional Engineer stating that the installation is in conformance with the approved or modified design. The dewatering system shall be designed using accepted professional methods of engineering design consistent with the best current practice.

#### 1.5 DEWATERING REQUIREMENTS

The dewatering system shall be of a type and capacity to accomplish all requirements specified herein.

(1) The dewatering system shall be designed, installed, and operated to dewater the excavation for lake and canal stages up to and including elevation 5 ft NGVD at the construction site. The dewatering system must also include standby pumping and power supply such that a continuously operable system is available during power outages, pump failures, etc.

(2) The dewatering system shall be of such capacity that it will lower and maintain the free-water and hydrostatic pressures in the foundation and piezometric levels to an elevation at least 2 feet below all earth slopes and excavation surfaces lying within the area, inclusive of the interior slopes of the temporary retaining structure embankments proper. The system shall have sufficient capacity to accomplish this desired result, allowing for normal variation in soil properties and foundation conditions.

(3) The water level shall be maintained continuously as specified above so that construction operations can be performed without interruption due to wet conditions.

(4) No upward or vertical or lateral flow of ground water into the excavated area will be permitted at any time. The dewatering system shall be designed, constructed/installed, and operated at all times, including unwatering, rewatering, and/or flooding so as to prevent movement and/or piping of the foundation, excavation slopes, and fill materials. The system shall be operated as necessary during dewatering, unwatering, flooding, and rewatering so as to maintain piezometric levels, within the dewatered area, at or beneath the elevation of the water level in the excavation.

(5) The system may consist of wells, jet eductors, wellpoints, pumps, standby pumps, sumps, sump pumps, ditches, and necessary appurtenances capable, at all lake and canal stages less than or equal to the design stage defined in (1), of intercepting seepage before it exits on any interior surface or excavation face and of providing control of surface water. The system shall be operated as required in (3) above to prevent flooding filter materials and fresh concrete; and shall be designed to control a rainfall intensity 11 inches in 24 hour period. Protection of all slopes will be required to prevent erosion under normal surface runoff and construction conditions. Slope protection may include proper drainage, mulching, vegetation, geosynthetics, etc.

(6) Unwatering of an excavation need not be accomplished by sumping alone, but may utilize sumping in addition to positive dewatering accomplished with a system meeting the requirements of subparagraph (5) above. Unwatering shall at all times fulfill the requirements of subparagraph (4) above.

(7) Rewatering and/or flooding of the area shall be accomplished by directing surface, ground water or canal water into the area. The dewatering system shall be kept operating at full capacity during such conditions, with dewatering effluent being directed into the excavation. Protection of slopes and excavation surfaces shall be provided as necessary to prevent erosion during flooding operations. No upward or lateral flow of ground water into the excavation will be permitted.

(8) Burying of headers will be allowed only in areas and to depths absolutely necessary for protection against damage at construction equipment crossings.

(9) A piezometer system shall be installed by the Contractor to monitor phreatic surface elevations to evaluate the effectiveness of the dewatering system in

fulfilling the requirements specified herein. Prior to excavation, the contractor shall install eight (8) piezometers within the projected interior of the TRS. Four piezometers will be positioned at the canal side sheetpile and four positioned at the city side sheetpile or the projected toe of any open cut on that side of the excavation. The piezometer shall monitor hydrostatic loads in sand deposits located between approximate elevation -35 and elevation -45. for that purpose, the screens shall be sanded and isolated from higher strata. The contractor shall protect the piezometers from damage during installation of the TRS and immediately repair or replace damaged piezometers. The Contractor shall make a minimum of four (4) readings per piezometer, per 24-hour period, a minimum of 6 hours apart, 7-days a week. These piezometer readings, along with corresponding lake and canal stage readings, shall be recorded and reported to the Contracting Officer within 12 hours after they are obtained.

(10) The dewatering system shall include mechanical means, such as an in-line Venturi meter for measuring the effluent from each wellpoint segment and/or each well as well as the total effluent of the dewatering system. Devices and techniques used in measurement shall be standard in the industry. The frequency of measurements shall coincide with the requirements for piezometers stated in subparagraph (9) above.

(11) The dewatering system shall be designed, installed, and operated in a manner which will preclude removal of materials from the foundation by the pumping operation (hereafter referred to as "sanding"). After installation, each well, jet eductor, or wellpoint segment shall be individually pump tested at maximum design flow rate to verify acceptability with respect to sanding. The dewatering system shall be designed and constructed/installed so as to permit periodic measuring of sanding characteristics of each well and/or wellpoint segment. Any well or wellpoint segment found sanding at a rate exceeding 1 pint per 25,000 gallons of effluent at any time during this contract shall be replaced at no additional cost to the Government.

(12) The rate of unwatering or rewatering the excavation shall meet the Contracting Officers requirements for operation, yet provide for a stable excavation. Additional provisions and requirements for emergency flooding are specified in Section 01100 –General Provision paragraph 2. entitled "DAMAGE TO WORK."

## 1.6 SUBMITTALS

Submittals shall be in accordance with Section 01330 – "SUBMITTAL PROCEDURES". The Contractor shall submit an original and 9 copies of its complete dewatering design package with details of the proposed dewatering facilities to the Contracting Officer for review and approval by the Contracting Officer. These details

must be presented in the form of shop drawings, including the type of system, planned layout and sizes of wells, jet eductors and/or wellpoints, headers, including all lengths requiring burial, collectors, ditches, piezometers, sumps and pumps; number, type, location, elevation, proposed method of installation, and proposed methods of testing of piezometers; facilities for measuring the flow of water pumped from each well and/or wellpoint segment of the dewatering system; facilities and proposed schedule for monitoring of sanding; provisions for disposal of water from the dewatering system; and plan of operation including flooding and rewatering plans. This submittal shall include the design capacity of each well and/or wellpoint segment at the design stage, and shall be submitted no later than 20 days prior to installation of the system. The Contracting Officer's review of the Contractor's proposed dewatering facilities will not exceed thirty (30) calendar days and will be for the purpose of determining (1) the acceptability of the general design concept and layout of the system; (2) the gross capacity of the system at the design stage; and (3) the acceptability of the flooding and rewatering plans. The design and installation procedure of the individual components of the system need not be submitted for review, as the performance of the complete system remains a responsibility of the Contractor. If the Contracting Officer determines, based on the above-mentioned review, that the system appears adequate to accomplish the required results, the system will be approved for installation. If the Contracting Officer's review determines that the Contractor's proposed dewatering facilities are either inadequate or inappropriate to accomplish the required results, the Contractor will be so notified in writing, and the basis for rejection will be included. Subsequent approval of the plan for installation, either as submitted or revised as a result of the review, should not be interpreted as the Government accepting responsibility for the performance of the dewatering system and shall not relieve the Contractor of full responsibility for the proper design, installation, maintenance, operation, and actual performance of both the individual system components and the entire system. After approval of installation, the Contractor shall install the entire dewatering system and shall make no alteration to the planned system without the prior written approval of the Contracting Officer. If, during the progress of the work, the installed dewatering system proves inadequate to meet the requirements specified, including piezometers, the Contractor shall, at its expense, furnish, install, and operate such additional dewatering facilities and/or make such changes, either in features of the system or the plan of operation, as may be necessary to perform the required dewatering without additional cost to the Government.

## 1.7 GENERAL CRITERIA

All permanent work under this contract except as otherwise specified shall be carried on in areas free of water. The Contractor shall design, furnish, install, operate, and maintain such facilities necessary to accomplish the following:

- (1) Collect and dispose of all surface water in the protected area regardless of source.

- (2) Control and dispose of all surface water around the periphery of the excavation areas to prevent such water from entering the excavation.
- (3) Lower and maintain the water table in pervious and semi-pervious strata at least 2 feet below the excavation slopes and at least 2 feet below the bottom of the excavation within the confines of the temporary retaining structures and excavated areas.
- (4) Install and monitor construction piezometers inside the temporary retaining structure or excavated area.
- (5) Relieve excess hydrostatic pressures in all pervious and semi-pervious foundation layers between approximate El -35 and El -45 within the confines of the temporary retaining structures or excavated area to prevent upheaval of, or any form of damage to, the foundation.

## 1.8 QUALITY CONTROL

### 1.8.1 General

The Contractor shall establish and maintain quality control for all dewatering operations to assure compliance with contract requirements and maintain records of his quality control for all construction operations, including but not limited to the following:

- (1) Designing.
- (2) Fabrication and workmanship.
- (3) Installation, operation, and removal.
- (4) Monitoring free water surface and piezometric elevations.
- (5) Measuring effluent from dewatering system.
- (6) Monitoring of sanding.

### 1.8.2 Reporting

An original and two (2) copies of these records and tests, as well as the corrective action taken, shall be furnished the Government daily. Format of the report shall be as prescribed in Section 01451 – “CONTRACTOR QUALITY CONTROL”. Reports of operation and inspection shall include the following data: piezometric elevation, canal and lake stages, time of operation of each pump, time of operation of each wellpoint

segment and/or each well, effluent discharge, sanding rates, problems encountered, proposed actions, and any other pertinent data.

## 1.9 INITIAL TESTING

Upon installation of the system, the Contractor shall test and evaluate the completed system to demonstrate that the system is, in fact, capable of performing the intended dewatering operation as outlined herein. This testing shall include complete falling-head tests to be conducted on each piezometer. The Contractor shall give the Contracting Officer 24-hour advance notice of its intention to perform testing. The documentation of results of the test shall be provided to the Contracting Officer within 48 hours of completion.

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION

### 3.1 OPERATION

The Contractor shall perform dewatering and maintain the work areas in a dry condition as long as are necessary for the work under this contract. Once an area is dewatered, it shall be maintained in a dewatered condition until all work in that area is completed, unless flooding is directed by the Contracting Officer. In the event that flooding is deemed necessary by the Contracting Officer, the protected area shall be flooded in accordance with the sequence of flooding proposed by the Contractor and approved by the Contracting Officer. However, the Contractor shall not flood the protected areas without the approval of the Contracting Officer. If flooding is directed by the Contracting Officer, the Contractor will be compensated for damages in accordance with the applicable requirements of the General Provision in Section 01100 entitled "DAMAGES TO WORK", and the Contract Clause in Section 00700, entitled *Changes* (FAR 52.243-4). If flooding occurs because of the Contractor's fault, negligence, or convenience, all costs resulting from such flooding shall be borne by the Contractor. Commencement of dewatering subsequent to flooding will be subject to prior approval of the Contracting Officer.

### 3.2 MAINTENANCE AND SERVICING

The Contractor shall be responsible for the maintenance, servicing, and repairs of the entire dewatering system and appurtenances during the life of the contract, including replacement of any and all wells, jet eductors, wellpoints and piezometers performing unsatisfactorily.

### 3.3 REMOVAL

The dewatering facilities required to maintain a dry condition within the protected area shall be maintained until completion of the work within the protected area, and then shall be completely removed. However, no dewatering facilities of any kind shall be removed without prior approval of the Contracting Officer. All wells, jet eductors, wellpoints, pumps, and appurtenances employed in the dewatering system and all materials other than earth shall remain the property of the Contractor and shall be removed from the site of the work. All holes created by removal of dewatering facilities shall be plugged in accordance with LADOTD water well closure criteria as stated in Chapter III of "Water Well Rules, Regulations, and Standards, State of Louisiana, dated November 1985". Any approvals of the implementation and/or removal plans by the Contracting Officer do not shift the responsibility for the removal of the system from the contractor to the Government. Nor does it relieve the contractor of his responsibility to provide a removal plan, which comports with industry standards and prudent construction practices.

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## SECTION 02252 - TEMPORARY RETAINING STRUCTURES

### PART 1 GENERAL

#### 1.1 SCOPE

This work shall consist of designing, furnishing, installing, maintaining and subsequently removing the temporary retaining structures indicated on the drawings, require, to complete this project. The Contractor shall be solely responsible for the design, layout, construction, maintenance and subsequent removal and disposal of required elements of the temporary retaining structures. The temporary cofferdam system shall be adequate for excavation work to remove miscellaneous debris, large sandbags (4,000 – 6,000 lbs), stone, stumps, reinforced concrete, steel sheet pile sections and previously placed fill materials within the extent shown on the drawings.

#### 1.2 MEASUREMENT AND PAYMENT

No measurement will be made for work specified in this section. Payment will be made at the contract lump sum price for "Temporary Retaining Structures". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, and equipment; designing, furnishing, installing, maintaining, and removing the required temporary retaining structures, backfilling voids, and all other work incidental thereto.

#### 1.3 SUBMITTALS

Submittals shall be in accordance with Section 01330 - "SUBMITTAL PROCEDURES". No work shall proceed until the submittals have been reviewed and approved by the Contracting Officer. The Contractor shall submit an original and eleven (11) copies of its complete design package consisting of the following for review not to exceed fourteen (14) calendar days by the Contracting Officer:

- (1) Design calculations.
- (2) Shop Drawings. A detailed layout of temporary retaining structures on standard size (28" x 40") sheets. These shop drawings shall bear the stamp and signature of the Registered Professional Engineer. These drawings shall clearly show:
  - (a) All pertinent dimensions and locations of these structures with reference to the project centerline (Wall-line, Baseline, etc.).
  - (b) Material grade, weight, length and designation of steel sheet pile section(s) used.

- (c) Bracing details.
- (d) Excavation sequence and procedure.
- (e) Provisions made for dewatering, indicating stage of excavation vs. necessary drawdown, water loading conditions, soil loads and equipment loads.
- (f) Any other items incidental or significant to this work.
- (g) Equipment Description. Complete hammer, extractors and other installation appurtenances.

## 1.4 DESIGN CALCULATIONS

### 1.4.1 Design Procedures

The items requiring design shall be performed by a Registered Professional Engineer. The design performed by the Contractor must evaluate the sizing of the structural elements for the temporary retaining structures. The structure shall meet all the requirements of Corps of Engineers Safety Manual EM 385-1-1 for fall protection and ingress and egress.

### 1.4.2 Elevations

The retaining structures shall have sufficient height to retain the soil against them. The minimum tip elevation of the sheet piling shall be as indicated on the drawings.

### 1.4.3 Sheet Pile Wall

#### 1.4.3.1 Loads

Required strut / wale forces are provided on the drawings.

#### 1.4.3.2 Reserved

#### 1.4.3.3 Retaining Wall Members

The structural design of the temporary retaining structure excluding the sheet pile shall be designed using industry standards. The loads for the structural design of these wall members are shown on the drawings.

#### 1.4.3.4 Reserved

#### 1.4.3.5 Designs and Modifications

The basis for the TRS is provided on the drawings and in the specifications (i.e. sheet pile size, tip, bracing location and design loads, etc.) The contractor may provide an alternate design for the TRS provided it is done in accordance with COE design guidance and criteria and submitted for review and approval. No extension of contract time will be allowed for review of an alternate system. All designs and any subsequent modifications to the design presented shall be performed, certified and stamped by a Registered Professional Engineer and submitted to the Contracting Officer for review and approval. The Registered Professional Engineer shall be present at the Contractor Quality Control preparatory and initial inspections. The Contractor shall, as a part of the Quality Control, furnish a signed statement by the design Professional Engineer stating that the installation is in conformance with the approved design.

#### 1.4.3.6 Engineering Analysis and Calculations

If the Contractor's construction plan, sequence and/or methods require the use of the existing structures for any purpose, he shall perform engineering analysis and calculations to ascertain that the purpose for which he intends to use the existing structure will not jeopardize the structural integrity of the same or any part, component, or portion thereof. Any damages, direct or indirect, caused to that property and to the property of others due to Contractor's failure to comply with this requirement or negligence in calculations shall be the sole responsibility of the Contractor.

### 1.5 QUALITY CONTROL

#### 1.5.1 General

The Contractor shall establish and maintain quality control for all operations to assure compliance with contract specifications and maintain records of its quality control for all construction operations, including but not limited to the following:

- (1) Designing.
- (2) Materials (type, strength, etc.)
- (3) Fabrication, installation and workmanship.
- (4) Full and proper engagement of Interlock (inspection and strength).
- (5) Placing (location, alignment, etc.).
- (6) Driving (pile hammer And rate of operation).
- (7) Cutting.

- (8) Welding.
- (9) Final sheet pile position; depth of penetration; tip and top elevations.
- (10) Stock piling and storage.
- (11) Removal and disposal of damaged piles.

#### 1.5.2 Reporting

The original and two (2) copies of these records and tests, as well as the corrective action taken, shall be furnished the Government daily. Format of the report shall be as prescribed in Section 01451 - "CONTRACTOR QUALITY CONTROL".

### 1.6 DELIVERY, STORAGE AND HANDLING OF MATERIALS

Materials delivered to the site shall be undamaged and shall be accompanied by certified test reports. Sheet piling shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage to the interlocks. Storage of sheet piling should also facilitate inspection.

## PART 2 PRODUCTS

### 2.1 SHEET PILING

Steel for sheet piling shall be hot rolled and conform to the requirements of ASTM A 572, Gr. 50. Sheet piling, including any special fabricated sections, shall be of the type and dimensions indicated on the drawings, and be of a design such that when in place they will be continuously interlocked throughout their entire length. At no additional cost to the Government, new Z-type hot rolled steel sheet piling conforming to ASTM A 572, Gr 50, meeting or exceeding the properties of the sheet pile section indicated on the drawings, may be substituted in kind.

## PART 3 EXECUTION

### 3.1.1 Placing and Driving

#### 3.1.1.1 Placing

Suitable temporary wales, templates, guide structures, or other approved methods shall be provided to insure that the piles are placed and driven to the correct alignment as shown on the Contractor's shop drawings. Piles shall be placed with each pile interlocked with adjoining piles for its entire length, so as to form a continuous diaphragm throughout the length of each run of piling wall. Interlocks shall be properly engaged. The Contractor's personnel shall not sit or place themselves on top of the sheet piling during the handling, installation, and removal of the piling.

#### 3.1.1.2 Driving

All sheet piles shall be driven to the depths shown on the Contractor's shop drawings. Pilings shall be driven by approved methods so as not to subject the pilings to damage and to insure proper interlocking throughout their lengths. Pilings damaged during driving or driven out of interlock shall be removed and replaced. All piles shall be driven without the aid of a water jet, unless otherwise authorized. Unless specifically indicated otherwise, each run of piling wall shall be driven to grade progressively from the start and pilings in each run shall be driven alternately in increments of depth to the required depth or elevation. On each day of sheet pile driving, the Contractor shall stab only the number of piles that can be driven to grade by the end of the day, and all piling stabbed shall be driven to grade by the end of each working day except that the last two piles may remain tapered up to receive the next days piles. If the piling next to the one being driven tends to follow below final grade, it may be pinned to the next adjacent piling. The Contractor is advised that buried stumps or similar debris may be encountered periodically on the sheet pile wall alignment and appropriate consideration should be given to hard driving conditions should delay occur. Piles shall not be driven within 100-feet of concrete less than 7 days old nor within 30-feet of concrete less than 28 days old.

#### 3.1.2 Emergency Locking System on Pile Driving Head

All pile driving equipment shall be equipped so as to prevent piles from falling when a single or multiple power failure occurs after the pile driving head is attached to the pile. The jaws of vibratory hammers shall be equipped with devices such that upon loss of hydraulic pressure, the jaws will not release the pile.

#### 3.1.3 Inspection of Driven Piling

The Contractor shall inspect the interlocked joints of driven pilings extending above ground. Pilings found to be damaged or driven out of interlock shall be removed and replaced.

### 3.2 BACKFILLING OF VOIDS

Where voids adjacent to the steel sheet piling are induced by pile driving operations, the Contractor shall pump out all seepage and rain water and backfill with a tremie-placed slurry. The slurry shall consist of one part cement, two parts bentonite, and six parts sand mixed with enough water to produce a slurry viscous enough to thoroughly fill the voids.

### 3.3 REMOVAL OF MATERIAL

#### 3.3.1 Removal Criteria

Should the Contractor elect to remove the temporary retaining structures, they shall not be removed until suitable backfill, between the finished structure and the steel sheet pile wall of the temporary retaining structures, is satisfactorily placed and compacted to an elevation approximately one (1') foot below the bottom elevation of the T-wall base slab. Piles shall not be pulled within 100-feet of concrete less than 7 days old nor within 30-feet of concrete less than 28 days old. When voids are induced by removal operations, the Contractor shall pump out all seepage and rainwater and backfill to within 3 feet of the ground surface with a tremie-placed slurry. The upper 3 feet shall be filled with backfill. Backfill and compaction requirements shall be as defined in Section 02200 - "EARTHWORK". All Contractor-furnished temporary retaining structures shall be removed from the site of work upon completion of work.

### 3.3.2 Safety

The removal of the temporary retaining structures shall be accomplished in a manner not injurious to the properties adjacent to and in the proximity of the project excavations, nor the work under construction.

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## SECTION 02315 - STEEL H-PILES

### PART 1 GENERAL

#### 1.1 SCOPE

The work covered by this Section consists of furnishing all plant, equipment, labor and materials, and performing all operations in connection with the installation of new steel H-piles in accordance with these specifications and applicable drawings.

#### 1.2 MEASUREMENT AND PAYMENT

##### 1.2.1 Measurement

Steel H-Piles will be measured for payment for furnishing, delivering and driving by the linear foot, along the axis of each pile complete in place below the specified elevation shown on the contract drawings.

##### 1.2.2 Payment

Payment shall constitute full compensation for furnishing, delivering, handling, driving, measuring heave, redriving heaved piles, compiling pile driving records, and any other items incidental to driving piles to the required elevation. Payment for HP 14 X 89 Steel Piles will be made at the contract unit price per linear foot for "Steel H-Piles."

No payment will be made for lengths of piles exceeding the required lengths as shown on the drawings.

##### 1.2.2.1 Cutoffs

Costs of cutting piles and removing the cutoff portion from the site shall be included in the applicable contract unit price for the payment item covered in paragraph 1.4.1.

##### 1.2.2.2 Pulled Piles

##### 1.2.2.2.1 Undamaged Piles

Piles pulled at the direction of the Contracting Officer and found to be undamaged will be paid for as follows:

- (1) The cost of pulling piles will be paid for at the contract unit price per linear foot for "Steel H-Pile".

- (2) The cost of redriving piles will be paid for at the contract unit price per linear foot for "Steel H-Piles".
- (3) Payment for filling abandoned holes resulting from moving a pulled pile to an adjacent location will be made by an equitable adjustment under the contract clause in Section 00700, Special Contract Requirement, entitled, "CHANGES (FAR 52.243-4)" of the contract clauses.

#### 1.2.1.2.2 Damaged Piles

When piles are pulled for inspection and found to be defective and/or damaged due to Contractor negligence, no payment will be made for furnishing, delivering, driving, pulling and disposing of such piles. New piles replacing damaged piles will be paid for at the applicable contract unit price for items covered in paragraph 1.4.1. Piles, which are pulled and found to be damaged through no fault of the Contractor, will be paid for at 100% of the applicable unit prices for the damaged pile plus the cost of pulling the damaged pile paid for in accordance with paragraph 1.4.4.1(1). Disposal of the pulled damaged pile will be paid for under the contract clause in Section 00700, Special Contract Requirement, entitled, "CHANGES (FAR 52.243-4)".

#### 1.2.2.2.2 Misaligned or Misplaced Piles

When a pile is driven but not acceptably placed or driven out of alignment and pulled at the direction of the Contracting Officer, no payment will be made for either originally furnishing and driving such pile nor for the operation of pulling. If the pile is undamaged and it is acceptably redriven at the direction of the Contracting Officer, it will then be paid for at the contract unit price. If damaged, it shall be replaced by a new pile, which will then be paid for at the contract unit price.

#### 1.2.2.3 Filling Voids Around Driven Piles

No separate payment will be made for backfilling voids around piles with fill material. All costs in connection therewith shall be included in the contract unit price for driving piles covered in paragraph 1.2.1.

### 1.3 REFERENCES

The publications listed below form a part of this specification to the extent specified herein. The publications are referred to in the text by the basic designation only.

#### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A 325

(2002) Structural Bolts, Steel, Heat Treated, 120/105  
ksi Minimum Tensile Strength

A 490 (2002) Structural Bolts, Alloy Steel, Heat-Treated, 150 ksi Minimum Tensile Strength

A 572/A 572M (2001) High-Strength Low-Alloy Columbian-Vanadium Structural Steel

#### AMERICAN WELDING SOCIETY (AWS)

D1.1 (2002) Structural Welding Code – Steel

#### AMERICAN PIPE INSTITUTE (API)

2A-LRFD (01-Jul-1993) Recommended Practice For Planning, Designing And Constructing Fixed Offshore Platforms – Load and Resistance Factor Design including Supplements

Spec 5L (2000) Line Pipe

### 1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01330, "SUBMITTAL PROCEDURES".

#### 1.4.1 Equipment Descriptions

Complete descriptions of pile driving equipment including hammers, extractors, protection caps and other installation appurtenances shall be submitted for approval prior to commencement of work.

#### 1.4.2 Shop Drawings

Shop drawings shall include details and dimensions of templates and other temporary guide structures for installing the piling, and shall provide details of the method of handling piling to prevent permanent deflection. A shop drawing detailing any proposed supplies shall be submitted for the review and approval of the Contracting Officer.

#### 1.4.3 Mill Test Reports

Certified copies of mill test reports shall be submitted for each material shipment and be identified with specific lots. Test reports shall indicate all pertinent data on strength, ductility, notch toughness, chemical analysis, heat treatment, and NDT.

#### 1.4.4 Materials Test Certificates

Material test certificates shall be submitted for each shipment and identified with specific lots prior to installing piling. Identification data should include piling type, dimensions, chemical composition, mechanical properties, section properties, heat number and mill identification mark.

#### 1.4.5 Driving Records

Records of the H-pile driving operations shall be submitted after driving is completed. These records shall provide a system of identification which shows the disposition of approved piling in the work, driving equipment performance data, piling penetration rate data, piling dimensions and top and bottom elevations.

#### 1.4.6 WEAP Analysis

Analysis for HP 14x89 piles shall be performed to demonstrate the selected pile driving equipment will drive the piles to the required elevations. A WAVE equation analysis should be submitted."

### 1.5 QUALITY CONTROL

#### 1.5.1 General

The Contractor shall establish and maintain quality control for pile driving operations to assure compliance with contract specification and maintain records of his quality control for all construction operations including, but not limited to, the following:

- 1) The H-pile driving record shall include the pile number or identification, location, size, length, elevation of tip, cut-off and top of pile, the number of blows and ram drop (in inches) required for each foot of penetration throughout the entire length of the pile, and the number of blows per inch for the last eighteen (18) inches of penetration. The record shall include the type and size of the hammer, the rate of operation, the type and dimensions of driving helmet, the cap-block used. The location and elevation of any obstruction or unusual occurrence encountered during driving shall be recorded and immediately reported to the Contracting Officer. His directed action shall also be recorded.
- 2) Recording uplift and vertical tolerances after driving, pulled and re-driven piles, and removal and disposal of damaged piles.
- 3) Plumbness of piling.
- 4) Penetration depth.
- 5) Rotation of piling along its centerline.

- 6) Stockpiling.
- 7) Materials;
- 8) Placing (location, alignment, etc.);
- 9) Cutting;
- 10) Record keeping;
- 11) Shop splices;
- 12) Welding;
- 13) Non-destructive testing; and
- 14) Removal and storage.

#### 1.5.2 Reporting

The original and two (2) copies of these records and tests, as well as the records of corrective action taken, shall be furnished to the Government daily. Format of the report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

#### 1.6 DELIVERY, STORAGE AND HANDLING

Materials delivered to the site shall be in a new and undamaged condition and shall be accompanied by certified test reports. The manufacturer's logo and mill identification mark shall be stamped on each un-spliced piling at a minimum of two (2) locations. All piling shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage. Storage of piling should also facilitate required inspection activities. Piles shall be stacked during delivery and storage so that each pile is maintained in a straight position and is supported every ten (10) feet or less along its length (ends inclusive) to prevent exceeding the maximum permissible camber or sweep. Piles shall not be stacked more than five (5) feet high unless approved by the Contracting Officer.

### PART 2 PRODUCTS

#### 2.1 MATERIALS

##### 2.1.1 H-Piles

Steel for H-piles shall conform to the requirements of ASTM A 572/A 572M, Grade 50. The H-piles shall be HP 14X89 piles. Piles shall have pointed ends, unless otherwise specified or directed. A maximum of one (1) pile splice will be allowed on each steel H-pile which, if used, shall be located in the middle third of the pile. Piles shall be spliced as shown on the plans.

## PART 3 EXECUTION

### 3.1 PLACING

#### 3.1.1 H-Piles

H-piles shall be driven as accurately as practicable in the correct locations, true to line both laterally and longitudinally and to the vertical lines, as indicated in the drawings. A lateral deviation from the correct location at the cut-off elevation of not more than two and one-half (2-1/2) inches will be permitted. A variation from plumb of not more than one-eighth (1/8) inch per foot of longitudinal axis will be permitted. A final variation in rotation of the pile about the centerline of the web of not more than 7.5 degrees will be permitted. The correct relative position of group piling shall be maintained by the use of templates or by other approved means. The vertical tolerance is plus two (2) inches or minus one (1) inch. Any pile driven out of correct location shall be pulled and re-driven by the Contractor at no additional cost to the Government.

### 3.2 DRIVING

H-piles shall be driven by an approved steam, air or diesel drop, single-acting, double acting, or differential acting pile-driving hammer. The Contractor shall select the proposed pile driving equipment as specified and submit descriptions of the proposed equipment for approval. Equipment selection shall be based on the wave equation analysis. The use of vibratory hammers shall not be allowed to drive foundation H-piles. The Contractor shall provide on site a punch of suitable size and length to punch through obstructions within 30 feet of the final pile cut-off elevation. No drilling or jetting will be allowed before or during driving operations. The hammer shall be operated at all times at the steam or air pressure and at the speed recommended by the manufacturer. Boiler or compressor capacity shall be sufficient to operate the hammer continuously at full rated speed. To determine ram drop, the Contractor shall attach a scale (in inches) to the pile hammer and an indicator on the pile ram. Installation of both devices shall be in such a manner that displacement of the ram will be indicated on the scale. Both the scale and the indicator shall be easily legible to observers on the ground during operations. Piling shall be protected during driving by a cushion and cap of approved design. Pile drivers shall have firmly supported leads extending to the lowest point the hammer must reach to maintain the hammer in proper alignment at all times. Each pile shall be driven continuously and without voluntary interruption until the required depth of penetration has been attained.

Deviation from this procedure will be permitted only in case the driving is stopped by causes which could not reasonably have been anticipated. Any pile that cannot be driven to the required depth because of an obstruction shall, as directed by the Contracting Officer, be pulled and another pile driven adjacent thereto, be cut off and used, or be abandoned as directed by the Contracting Officer. The Contractor shall make observations to detect any uplift of piling already driven and uplifted piling shall be back-driven to the original penetration, at no additional cost to the Government. The Contractor shall provide every facility for the Contracting Officer to inspect and record data relative to pile driving operations. This data shall include final tip elevation, top elevation and cutoff elevation. For all other structures, piles shall not be driven within one hundred (100) feet of concrete less than seven (7) days old nor within thirty (30) feet of concrete less than twenty-eight (28) days old.

### 3.3 DRIVING RECORD

A complete and accurate driving record of the H-piles shall be compiled and submitted as required in paragraph 1.4.5. The driving record for impact hammers shall include pile dimensions and location, pile identification number, date driven, original pile length, tip elevation, description of hammer used, rate of hammer operation, number of blows required for each foot of penetration throughout the entire length of each pile and for each inch of penetration in the last foot of penetration, total driving time in minutes and seconds for each pile, and other pertinent information as required or requested by the Contracting Officer. When driving long piles of high-slenderness ratio, special precautions shall be taken to ensure against overstressing and leading away from a plumb or true position. The hammers shall be operated at all times at the speed and under the conditions recommended by the manufacturer subject to the approval of the Contracting Officer. Once pile driving has begun, all conditions (such as alignment, batter, cushion, etc.) shall be kept constant. Each pile shall be driven continuously and without interruption until the required depth of penetration has been attained. Deviation from this procedure will be permitted only when driving is stopped by causes that reasonably could not have been anticipated. Jetting shall not be used to assist driving piles. A pile that cannot be driven to the required depth because of an obstruction shall be pulled and re-driven as directed by the Contracting Officer. When driving piles in clusters or under conditions of relatively close spacing, observations shall be made to determine heave. Heaved piles shall be back-driven to the original depth of penetration without additional cost to the Government. Piles damaged or impaired for use during driving shall be pulled and replaced with new piles and new piles driven as directed by the Contracting Officer without additional cost to the Government. The Contracting Officer may require that any pile be pulled for inspection. Piles pulled at the direction of the Contracting Officer and found to be in suitable condition shall be re-driven as directed by the Contracting Officer and payment therefore will be made in accordance with paragraph 1.2.2. Piles pulled at the request of the Contracting Officer and found to be damaged shall be replaced by new piles at the Contractor's expense.

### 3.4 DAMAGED AND MISPLACED PILING

The Contractor may be required to pull selected piles after driving, for test and inspection, to determine the condition of the piles. Any pile so pulled and found to be damaged to the extent that its usefulness in the structure is impaired shall be removed from the work and the Contractor shall furnish and drive a new pile to replace the damaged pile. Any pile which is damaged because of internal defects or by improper handling or driving, or which is otherwise damaged by fault of the Contractor so as to impair it for its intended use, or any pile driven out of proper location, shall be removed and replaced. All work of removal and cost of replacement shall be borne by the Contractor at no additional expense to the Government. Piles pulled and found to be in satisfactory condition shall be re-driven and payment will be made in accordance with the applicable paragraph above.

### 3.5 CUTTING AND SPLICING OF PILES

#### 3.5.1 Cutting Piles

H-piles extending above grade in excess of the specified tolerance, and which cannot be driven deeper, shall be cut off to the required grade, upon approval of the Contracting Officer. The Contractor shall also trim the tops of piles excessively battered during driving, when directed to do so, at no cost to the Government. Cut-offs shall become the property of the Contractor and shall be removed from the worksite. Piles driven below the elevations indicated for the top of piles and piles which, because of damaged heads, have been cut off to permit further driving and are then too short to reach the required top elevation, shall be extended to the required top elevation by welding an additional length, when directed, without cost to the Government. Should splicing of additional lengths be necessary, the splice shall be in accordance with the detail provided on the plans. Welded extensions shall be a minimum of twelve (12) inches in length. Piles adjoining spliced piles shall be full length unless otherwise approved. When piles are to be driven in sections and spliced together, they shall be delivered on site in full lengths and cut for splicing only after delivery. Welding of splices shall conform to the requirements of Section 05501, "METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS". Ends of pilings to be spliced together shall be squared before splicing to eliminate dips or camber. The Contractor may cut holes in the piles for bolts, rods, drains or utilities at locations and of sizes shown on the drawings or as directed. All cutting shall be done in a neat and workmanlike manner. Bolt holes in steel piling shall be drilled or may be burned and reamed by approved methods, which will not damage the remaining metal. Holes, other than bolt holes, shall be reasonably smooth and of the proper size for rods and other items to be inserted.

#### 3.5.2 Pile Splices and Tension Anchors

Welding for pile splices and tension anchors shall comply with Section K of API RP 2A-LRFD. Welding procedure specifications shall be submitted. The abutting ends shall be prepared in accordance with approved welding procedures and shall comply

with paragraph M.5.4 of API RP 2A-LRFD. A weld inspector shall perform a visual test (VT) as specified in paragraph N.4.3.1 of API RP 2A-LRFD as the work progresses. The entire splice length shall be inspected by ultrasonic testing (UT). The UT technique shall comply with AWS D1.1, Section 6, Part F and acceptance criteria is as specified in AWS D1.1 Subsection 6.13.3, Class R. Damaged portions of the driven pile segment shall be removed as directed by the Contracting Officer's Representative. Repairs shall be done in accordance with AWS D1.1, Subsection 5.26, and repairs shall be retested. The field splice shall be made prior to driving.

### 3.6 VOID BACKFILL

Where voids adjacent to the piling are induced by pile driving operations, the Contractor shall pump out all seepage and rainwater and backfill with a tremie-placed slurry. The slurry shall consist of one (1) part cement, two (2) parts bentonite, and six (6) parts sand mixed with enough water to produce a slurry viscous enough to thoroughly fill the voids but shall have not less than twelve (12) pounds of solids per gallon.

### 3.7 PAINTING

Painting shall be in accordance with Section 09940. The unpainted portion of H-piling which are to be embedded in concrete shall be free from surface contaminants such as oil, loose particles, or similar debris that would prohibit bonding between the concrete and H-piling.

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SECTION 09940 – PAINTING

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## SECTION 09940 – PAINTING

### PART 1 GENERAL

#### 1.1 SCOPE

The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, appliances, and materials and performing all operations in connection with preparation of surfaces and application of paint and other specified materials. This work shall be accomplished in complete and strict accordance with the specifications and the applicable drawings and shall be subject to the terms and conditions of the contract. All painting shall be performed in Contractor's fabrication yard. Only minor field touch-up painting is allowed.

#### 1.2 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for painting steel sheet pile and steel H piles. Payment for painting these items shall be included in the contract price for the items to which the work pertains. Price and payment shall constitute full compensation for furnishing all plant, labor, materials and equipment, as specified herein.

#### 1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

##### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1186	(2001) Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base
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##### THE SOCIETY FOR PROTECTIVE COATINGS

SP 1	(1982, (2004)) Solvent Cleaning
SP 10/NACE No. 2	(2000, (2004)) Near-White Blast Cleaning

#### 1.4 SUBMITTALS

The following shall be submitted for information only in accordance with Section 01330, "SUBMITTAL PROCEDURES":

##### 1.4.1 Paint System

The paint system chosen by the Contractor shall be submitted before use in the project. Manufacturer data sheets shall contain information on the preparation of the surfaces, curing times, recommended thinners, and other data concerning the application of the paint.

#### 1.4.2 Records

The Contractor shall document and submit records of inspections and operations performed in accordance with paragraph 3.5. Inspection submittals shall be made on a daily basis.

### 1.5 QUALITY CONTROL

#### 1.5.1 General

The Contractor shall establish and maintain quality control for painting operations to assure compliance with contract specifications and maintain records of his quality control for all construction operations including but not limited to the following:

- (1) Cleaning and preparation of surfaces.
- (2) Paint and formulations.
- (3) Number of coats and rates of applications.
- (4) Protection of painted surfaces.

#### 1.5.2 Reporting

The original and two (2) copies of these records and tests, as well as the records of corrective action taken, shall be furnished to the Government daily. Format of this report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

## PART 2 PRODUCTS

### 2.1 PAINT FORMULAS

The paint system to be used shall be one of those listed below or equal. Paint system shall have an estimated seven (7) year life in a brackish water environment. Only one (1) paint system shall be used for the project unless prior approval by the Contracting Officer.

**System 1** One coat of **Amercoat 78HB** Amine Cured Coal Tar Epoxy at 16.0 – 18.0 mils DFT. Use Amercoat 861 Accelerator to speed up curing time.

**System 2** One coat of **Amercoat 240** Universal Epoxy with Amercoat 880 Glassflake Additive at 16.0 – 20.0 mils DFT.

**System 3** One coat of **Amerlock 2** High Solids Epoxy with Amercoat 880 Glassflake Additive at 16.0 – 20.0 mils DFT.

## 2.2 THINNERS

Thinners shall be as recommended by the paint manufacturer for that particular paint.

## PART 3 EXECUTION

### 3.1 CLEANING AND PREPARATION OF SURFACES TO BE PAINTED

#### 3.1.1 General Requirements

Surfaces to be painted shall be cleaned before applying paint or surface treatments. Deposits of grease or oil shall be removed in accordance with SSPC SP 1, prior to mechanical cleaning. Solvent cleaning shall be accomplished with mineral spirits or other low toxicity solvents having a flashpoint above 100 degrees Fahrenheit. Clean cloths and clean fluids shall be used to avoid leaving a thin film of greasy residue on the surfaces being cleaned. Cleaning and painting shall be so programmed that dust or other contaminants from the cleaning process do not fall on wet, newly painted surfaces, and surfaces not intended to be painted shall be suitably protected from the effects of cleaning and painting operations. Welding of, or in the vicinity of, previously painted surfaces shall be conducted in a manner to prevent weld spatter from striking the paint and to otherwise reduce coating damage to a minimum; paint damaged by welding operations shall be restored to original condition. Surfaces to be painted that will be inaccessible after construction, erection, or installation operations are completed shall be painted before they become inaccessible.

#### 3.1.2 Surfaces to be Painted

Surfaces to be painted shall be dry blast-cleaned to SSPC SP 10. The blast profile shall be as specified by paint manufacturer. Within eight (8) hours after cleaning, prior to the deposition of any detectable moisture, contaminants, or corrosion, all ferrous surfaces blast cleaned to SSPC SP 10 shall be cleaned of dust and abrasive particles by brush, vacuum cleaner, and/or blown down with clean, dry, compressed air, and given the first coat of paint. All abrasives used in sandblasting operations shall contain less than one percent (1%) silica, unless approved in writing by the Contracting Officer. Upon written request by the Contractor, the Contracting Officer may authorize mill or shop cleaning of assembled or partially assembled components specified to receive the paint system. The surfaces, if shop blasted, shall be shop coated with the first and second coats of the specified paint system. The shop coating shall be maintained in good condition by cleaning and touching up of areas

damaged during the construction period. If pinpoint or general rusting appears, surfaces shall be reblasted and repainted at no added cost to the Government. Prior to the application of subsequent coats, soiled areas of the coating shall be thoroughly cleaned and all welds or other unpainted or damaged areas shall be cleaned and coated in a manner to make them equivalent to adjacent, undamaged paint surfaces.

## 3.2 PAINT APPLICATION

### 3.2.1 General

The finished coating shall be free from holidays, pinholes, bubbles, runs, drops, ridges, waves, laps, excessive or unsightly brush marks, and variations in color, texture, and gloss. Application of initial or subsequent coatings shall not commence until the Contracting Officer has verified that atmospheric conditions and the surfaces to be coated are satisfactory. Each paint coat shall be applied in a manner that will produce an even, continuous film of uniform thickness. Edges, corners, crevices, seams, joints, welds, rivets, corrosion pits, and other surface irregularities shall receive special attention to ensure that they receive an adequate thickness of paint. Spray equipment shall be equipped with traps and separators and where appropriate, mechanical agitators, pressure gauges, pressure regulators, and screens or filters. Air caps, nozzles, and needles shall be as recommended by the spray equipment manufacturer for the material being applied. Airless-type spray equipment may be used only on broad, flat, or otherwise simply configured surfaces, except that it may be employed for general painting if the spray gun is equipped with dual or adjustable tips of proper types and orifice sizes.

### 3.2.2 Mixing and Thinning

Paints shall be thoroughly mixed, strained where necessary, and kept at a uniform composition and consistency during application. Paste or dry-powder pigments specified to be added at the time of use shall, with the aid of powered stirrers, be incorporated into the vehicle or base paint in a manner that will produce a smooth, homogeneous mixture free of lumps and dry particles. Where necessary to suit conditions of the surface temperature, weather, and method of application, the paint may be thinned immediately prior to use. Thinning shall generally be limited to the addition of not more than one (1) pint per gallon of the proper thinner; this general limitation shall not apply when more specific thinning instructions are provided. Paint that has been stored at low temperature, shall be brought up to at least 70 degrees Fahrenheit before being mixed and thinned, and its temperature in the spray tank or other working container shall not fall below 60 degrees Fahrenheit during the application. Paint that has deteriorated in any manner to a degree that it cannot be restored to essentially its original condition by customary field-mixing methods shall not be used and shall be removed from the project site.

### 3.2.3 Atmospheric and Surface Conditions

Paint shall be applied only to surfaces that are above the dew point temperature and that are completely free of moisture as determined by sight and touch. Paint shall not be applied to surfaces upon which there is detectable frost or ice. Except as otherwise specified, the temperature of the surfaces to be painted and of air in contact therewith shall be not less than 45 degrees Fahrenheit during paint application nor shall paint be applied if the surfaces can be expected to drop to 32 degrees Fahrenheit or lower before the film has dried to a reasonably firm condition. During periods of inclement weather, painting may be continued by enclosing the surfaces and applying artificial heat, provided the minimum temperatures and surface dryness requirements prescribed previously are maintained. Paint shall not be applied to surfaces heated by direct sunlight or other sources to temperatures that will cause detrimental blistering, pinholing, or porosity of the film.

#### 3.2.4 Time Between Surface Preparation and Painting

Surfaces that have been cleaned and/or otherwise prepared for painting shall be primed as soon as practicable after such preparation has been completed but, in any event, prior to any deterioration of the prepared surface.

#### 3.2.5 Method of Paint Application

Unless otherwise specified, paint shall be applied by brush or spray to ferrous and nonferrous metal surfaces. Special attention shall be directed toward ensuring adequate coverage of edges, corners, crevices, pits, rivets, bolts, welds, and similar surface irregularities. Other methods of application to metal surfaces shall be subject to the specific approval of the Contracting Officer.

#### 3.2.6 Measurement on Ferrous Metal

Film thickness or spreading rates shall be as specified hereinafter. Where no spreading rate is specified, the paint shall be applied at a rate normal for the type of material being used. In any event, the combined coats of a specified paint system shall completely hide base surface and the finish coats shall completely hide undercoats of dissimilar color. Where dry film thickness requirements are specified for coatings on ferrous surfaces, measurements shall be made with one of the thickness gages listed below. They shall be calibrated and used in accordance with ASTM D 1186. They shall be calibrated using plastic shims with metal practically identical in composition and surface preparation to that being coated, and of substantially the same thickness (except that for measurements on metal thicker than 1/4 inch, the instrument may be calibrated on metal with a minimum thickness of 1/4 inch). Frequency of measurements shall be as recommended for field measurements by ASTM D 1186 and reported as the mean for each spot determination. The instruments shall be calibrated or calibration verified prior to, during, and after each use. Authorized thickness gages:

- a. Mikrotest, Elektro-Physik, Inc.

- b. Inspector Gage, Elcometer Instruments, Ltd.
- c. Positest, Defelsko Corporation
- d. Minitector, Elcometer Instruments, Ltd.
- e. Positector 2000, Defelsko Corporation

### 3.2.7 Progress of Painting Work

Where painting on any type of surface has commenced, the complete painting operation, including priming and finishing coats, on that portion of the work shall be completed as soon as practicable, without prolonged delays. Sufficient time shall elapse between successive coats to permit them to dry properly for recoating, and this period shall be modified as necessary to suit adverse weather conditions. Paint shall be considered dry for recoating when it feels firm, does not deform or feel sticky under moderate pressure of the finger, and the application of another coat of paint does not cause film irregularities such as lifting or loss of adhesion of the undercoat. All coats of all painted surfaces shall be unscarred and completely integral at the time of application of succeeding coats. At the time of application of each successive coat, undercoats shall be cleaned of dust, grease, overspray, or foreign matter by means of airblast, solvent cleaning, or other suitable means. Cement and mortar deposits on painted steel surfaces, not satisfactorily removed by ordinary cleaning methods, shall be brushoff blast cleaned and completely repainted as required. Undercoats of high gloss shall, if necessary for establishment of good adhesion, be scuff sanded, solvent wiped, or otherwise treated prior to application of a succeeding coat.

### 3.2.8 Contacting Surfaces

When riveted or ordinary bolted contact is to exist between surfaces of ferrous or other metal parts of substantially similar chemical composition, such surfaces will not be required to be painted, but any resulting crevices shall subsequently be filled or sealed with paint. Contacting metal surfaces formed by high-strength bolts in friction-type connections shall not be painted. Where a nonmetal surface is to be in riveted or bolted contact with a metal surface, the contacting surfaces of the metal shall be cleaned and given three coats of the specified primer. Unless otherwise specified, corrosion-resisting metal surfaces, including cladding therewith, shall not be painted.

### 3.2.9 Drying Time Prior to Immersion

Minimum drying periods after final coat prior to immersion shall be as recommended by the paint manufacturer based on the ambient temperature.

### 3.2.10 Protection of Painted Surfaces

Where shelter and/or heat are provided for painted surfaces during inclement weather, such protective measures shall be maintained until the paint film has dried and discontinuance of the measures is authorized. Items that have been painted shall not be handled, worked on, or otherwise disturbed until the paint coat is fully dry and hard. All metalwork coated shall be stored out of contact with the ground in a manner and location that will minimize the formation of water-holding pockets; soiling, contamination, and deterioration of the paint film, and damaged areas of paint on such metalwork shall be cleaned and touched up without delay. The first field coat of paint shall be applied within a reasonable period of time after the shop coat and in any event before weathering of the shop coat becomes extensive.

### 3.2.11 Contractor Recommended Paint System

#### 3.2.11.1 Mixing

Paint shall be mixed in accordance with paint manufacturer's recommendations. The pot life of the mixed paint, extended by permissible thinning, may vary from two (2) hours in very warm weather to five (5) or more hours in cool weather. Pot life in warm weather may be extended by precooling the components prior to mixing; cooling the mixed material; and/or by slow, continuous stirring during the application period. The mixed material shall be applied before unreasonable increases in viscosity take place.

#### 3.2.11.2 Application

Spray guns shall be of the conventional type equipped with a fluid tip of approximately 0.09 inch in diameter and external atomization, seven-hole air cap. Material shall be supplied to the spray gun from a bottom withdrawal pot or by means of a fluid pump; hose shall be 1/2 inch in diameter. Atomization air pressure shall not be less than eighty (80) pounds per square inch. High-pressure airless spray equipment may be used only on broad, simply configured surfaces. Brush application shall be with a stiff-bristled tool heavily laden with material and wielded in a manner to spread the coating smoothly and quickly without excessive brushing. The paint shall flow together and provide a coherent, pinhole-free film. The direction of the spray passes (or finish strokes if brushed) of the second coat shall be at right angles to those of the first where practicable.

#### 3.2.11.3 Subsequent Coats

Except at the high temperatures discussed later in this paragraph, the drying time between coats shall not be more than that recommended by the paint manufacturer, and application of a subsequent coat as soon as the undercoat is reasonably firm is strongly encouraged. Where the temperature for substrate or coating surfaces during application or curing exceeds or can be expected to exceed 125 degrees Fahrenheit as the result of direct exposure to sunlight, the surfaces shall be shaded by overhead

cover or the interval between coats shall be reduced as may be found necessary to avoid poor intercoat adhesion.

#### 3.2.11.4 Ambient Temperature

Paint shall not be applied when the receiving surface or the ambient air is below the paint manufacturer's recommended temperature, less it can be reasonably anticipated that the average ambient temperature will be within the recommended temperature range for the five (5) day period subsequent to the application of any coat.

### 3.3 PAINT SYSTEMS APPLICATION

The required paint systems and the surfaces to which they shall be applied are shown in this paragraph, and/or in the drawings. Supplementary information follows.

#### 3.3.1 Fabricated and Assembled Items

Items that have been fabricated and/or assembled into essentially their final form and that are customarily cleaned and painted in accordance with the manufacturer's standard practice will be exempted from equivalent surface preparation and painting requirements described herein, provided that:

- a. Surfaces that have been primed and finish painted in accordance with the manufacturer's standard practice are of acceptable color and are capable of being satisfactorily touched up in the field.
- b. Items expressly designated herein to be cleaned and painted in a specified manner are not coated in accordance with the manufacturer's standard practice if different from that specified herein.

### 3.4 PAINTING SCHEDULES

Items or surfaces to be coated: All Steel Sheet Piles and Steel H-piles embedded into concrete shall be coated from elevation -25.0 (NAVD 88) to a point 6 inches below the pile cut-off elevation.

### 3.5 INSPECTION

The Contractor shall inspect, document, and report all work phases and operations on a daily basis. As a minimum the daily report shall contain the following:

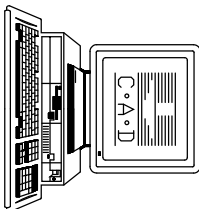
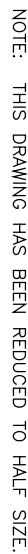
- a. Inspections performed, including the area of the structure involved and the results of the inspection.

b. Surface preparation operations performed, including the area of the structure involved, the mode of preparation, the kinds of solvent, abrasive, or power tools employed, and whether contract requirements were met.

c. Thinning operations performed, including thinners used, batch numbers, and thinner/paint volume ratios.

d. Application operations performed, including the area of the structure involved, mode of application employed, ambient temperature, substrate temperature, dew point, relative humidity, type of paint with batch numbers, elapsed time between surface preparation and application, elapsed time for recoat, condition of underlying coat, number of coats applied, and if specified, measured dry film thickness or spreading rate of each new coating.

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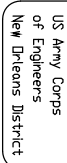


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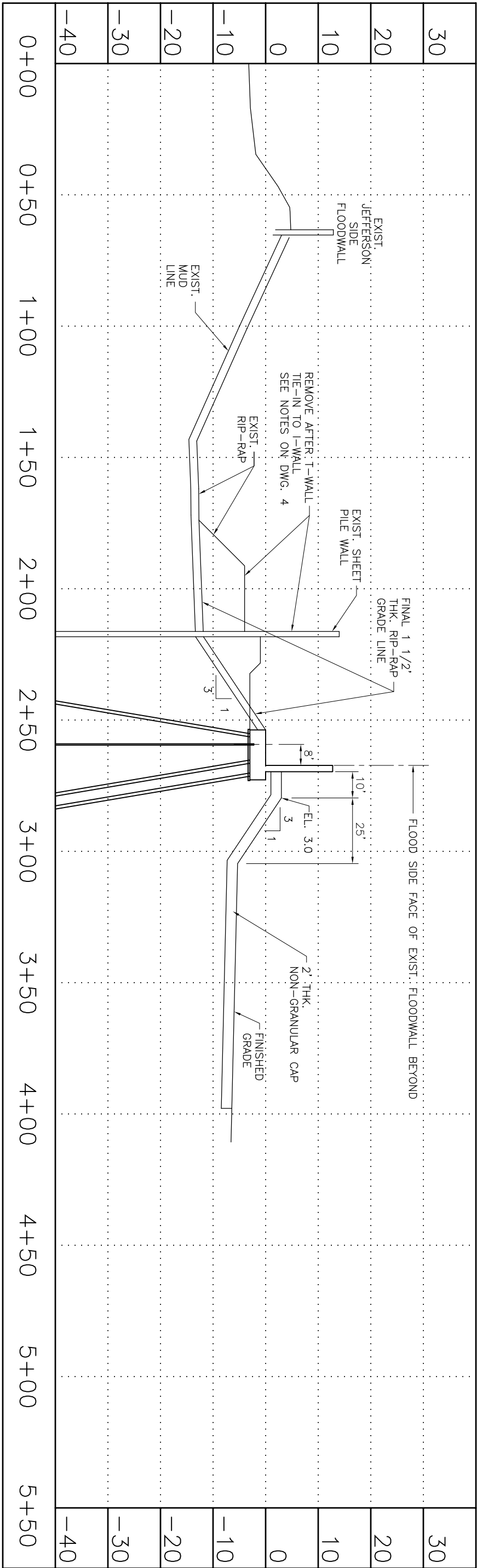


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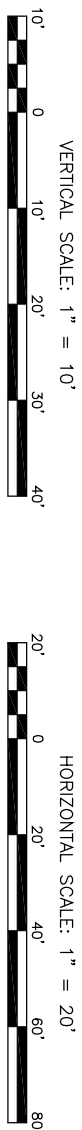
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N-01

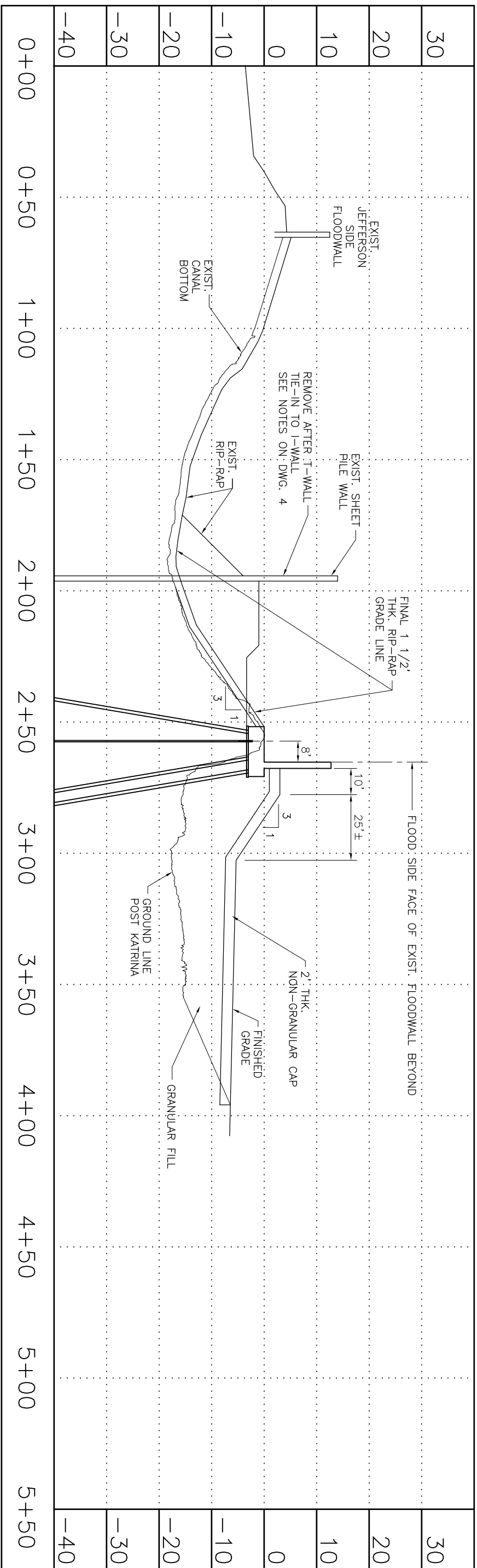


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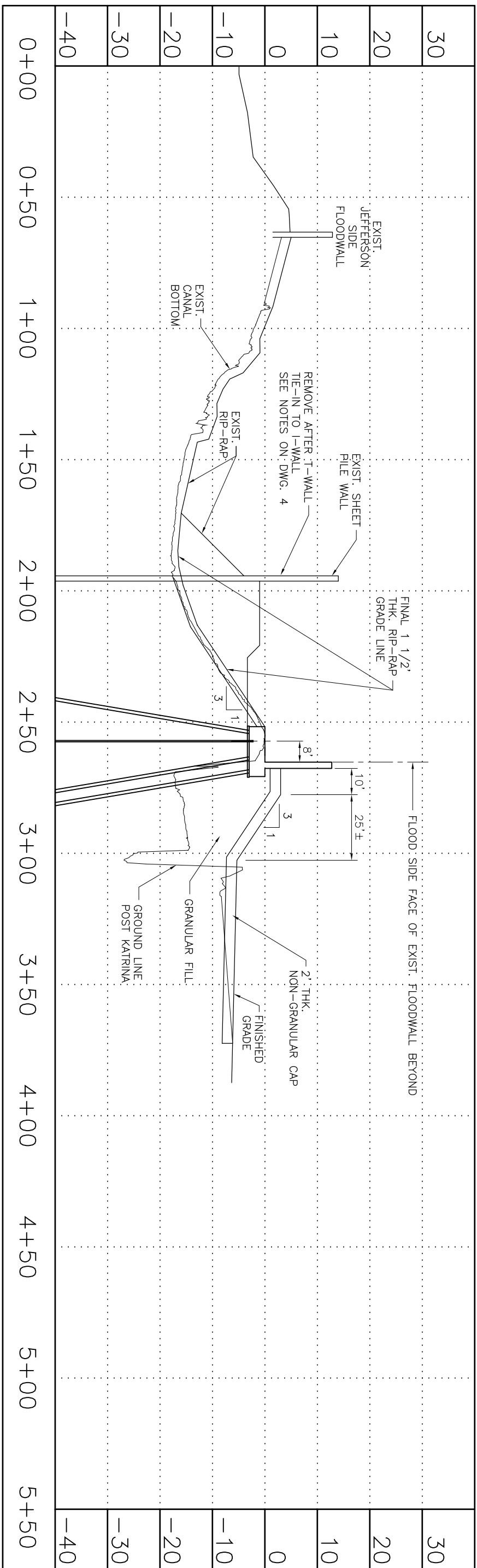
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2. VERTICAL SCALE IS EXAGGERATED.



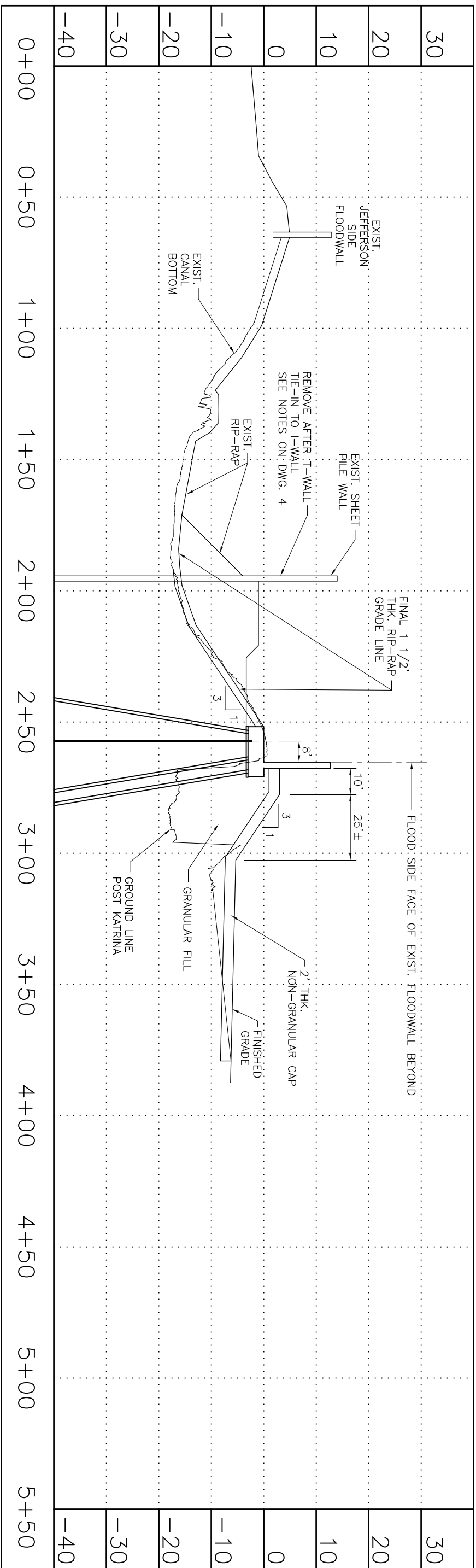
Safety is a Part  
of Your Contract



M-01



L-01

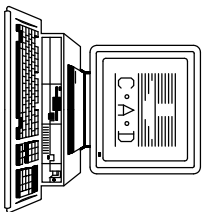


K-01



NOTES:

1. THIS DRAWING HAS BEEN REDUCED TO HALF SIZE.
2. VERTICAL SCALE IS EXAGGERATED.



**LINFIELD, HUNTER & JUNIUS, INC.**  
CONSULTING ENGINEERS AND ARCHITECTS  
3608 18th Street, Suite 200  
Metairie, Louisiana 70002

## CROSS SECTIONS

U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
CORPS OF ENGINEERS  
NEW ORLEANS, LOUISIANA

DESIGNED BY: LHJ  
CHECKED BY: LHJ  
DRAWN BY: LHJ  
DATE: 12-30-05

PLOT DATE	
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DESIGN FILE NAME:  
SUBMITTED BY:  
LINFIELD, HUNTER & JUNG  
DESIGN ENGINEER


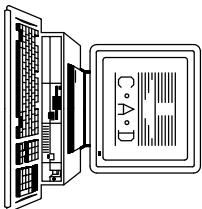
SOLICITATION NO.  
W912P8-06-R-1

[illegible]

10



HORIZONTAL SCALE: 1" = 20'

A horizontal scale bar with alternating black and white segments. It is marked with 0, 20, 40, 60, and 80 feet.

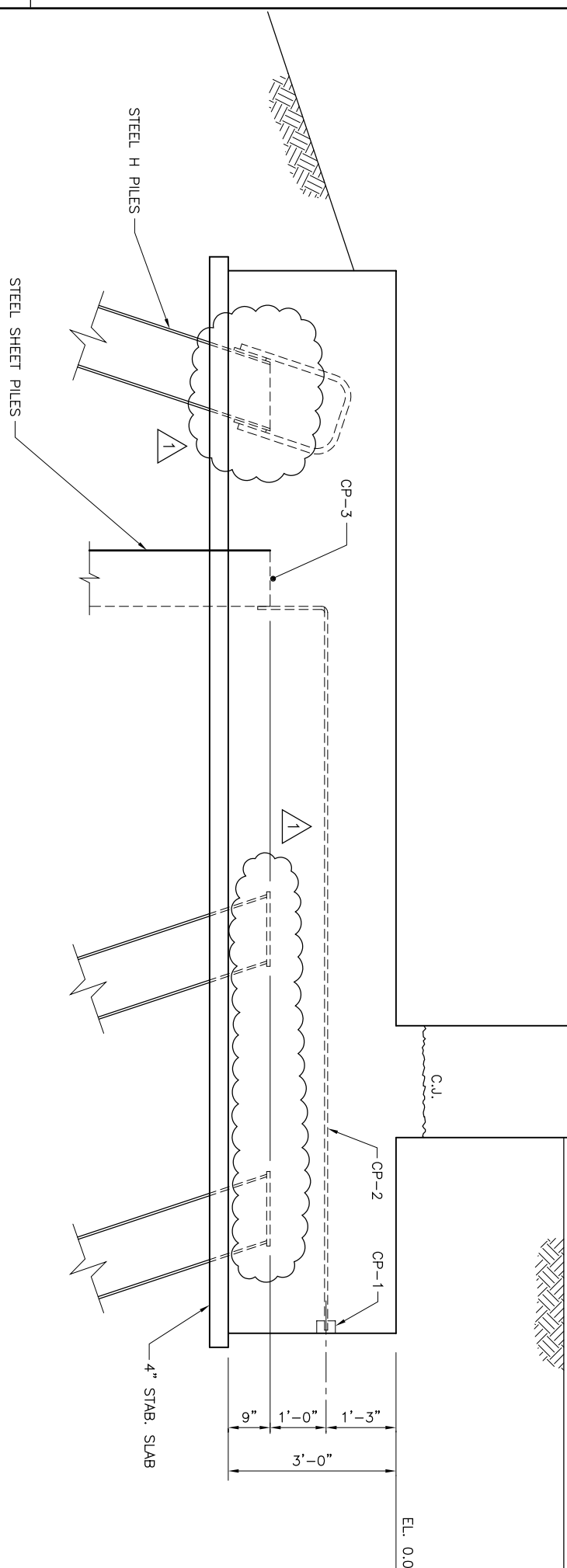
US Army Corps  
of Engineers  
New Orleans District

## Safety is a Part of Your Contract

EL. 12.75± (MATCH EXIST. 1-WALL ELEV.)

FLOOD SIDE

PROTECTED SIDE



## CORROSION PROTECTION DETAIL

SCALE: N.T.S

## LEGEND

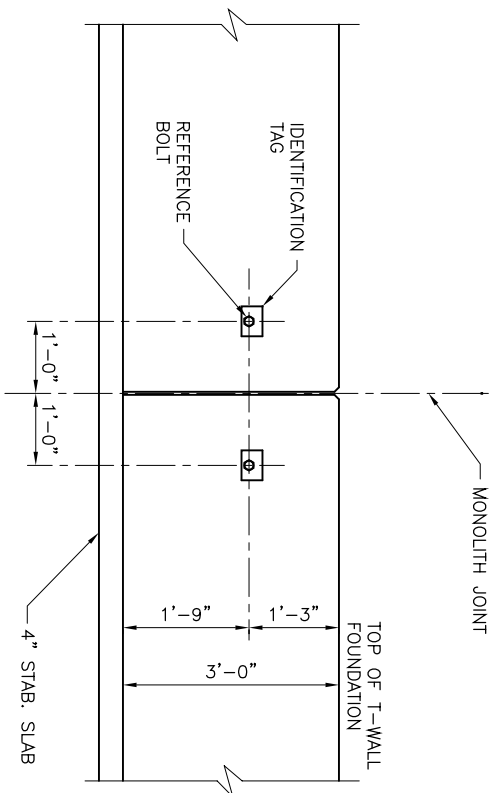
- CR-2 #6 REINFORCING BAR WELDED TO SHEET PILE AND TERMINATED IN THE FERRULE WITHIN 1/2" OF THE COVER.
- CR-3 #6 REINFORCING BAR TO BE WELDED TO THE TOP OF EACH STEEL SHEET PILE. #6 REINFORCING BAR SHALL NOT EXTEND ACROSS THE MONOLITH JOINT. BOND CABLE SHALL HAVE AN 8" DIAMETER LOOP TO ALLOW FOR STRESSES. BOND CABLES SHALL BE WELDED AS SPECIFIED TO ADJACENT STEEL PILES 12" BELOW THE BOTTOM OF BASE SLAB FOR T-WALL JOINTS, 7" BELOW BOTTOM OF CONCRETE CAP FOR I-WALL JOINTS AND AT SPANDRILS FROM T-WALL TO I-WALL JOINTS. WELDED CONNECTIONS SHALL BE COATED WITH STANDING EPOXY TO OBTAIN MOISTURE PROOF JOINT. SEE SPECIFICATIONS.
- CR-4 #6 REINFORCING BAR WILL NOT BE ALLOWED.

SETTLEMENT REFERENCE MARKER SCHEDULE		
S.F.M. NO.	MONTHLY LOCATION NO. ( C/L MONTHLY JOINT )	ELEVATION * *
1	1 - 2	
2	8 - 9	
3	17 - 18	

\* \* NOTE: THE CONTRACTOR SHALL TAKE FINAL ELEVATIONS OF ALL SETTLEMENT REFERENCE MARKERS AND SHALL SUBMIT THIS DATA TO THE CONTRACTING OFFICER REPRESENTATIVE (COR). THE COR WILL FURNISH THIS DATA TO ENGINEERING DIVISION, ATTENTION OF: CELMN-ED-1.

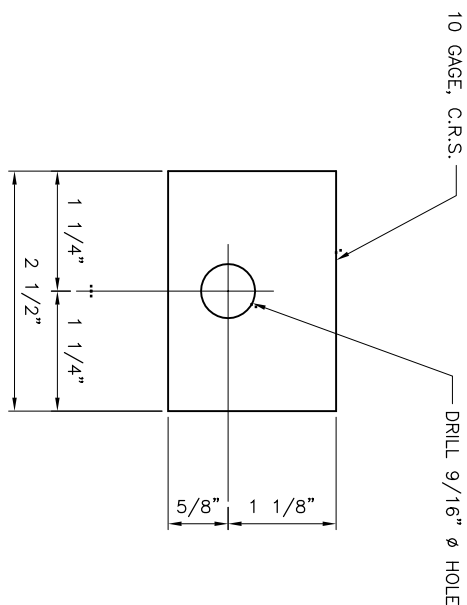
NOTE:

1. FOR GENERAL NOTES, SEE DWG. 2.



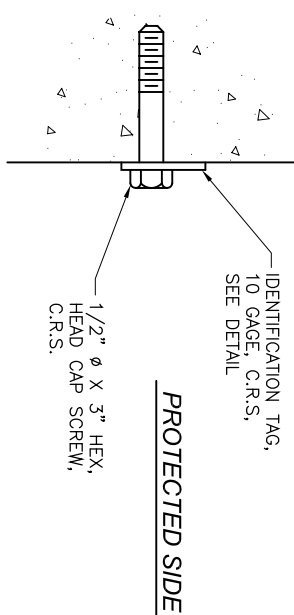
## TYPICAL ELEVATION OF

SCALE: 3/4" = 1'-0"



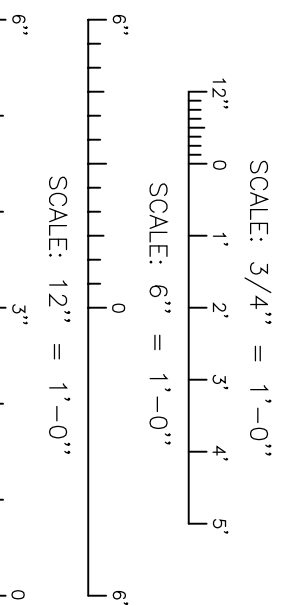
## IDENTIFICATION TAG

SCALE: 12" = 1'-0"

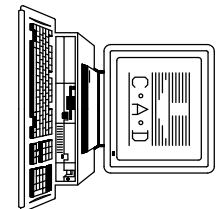


## REFERENCE BOLT

SCALE: 6" = 1'-0"



NOTE: THIS DRAWING HAS BEEN REDUCED TO HALF SIZE.



US Army Corps  
of Engineers  
New Orleans District

[illegible]

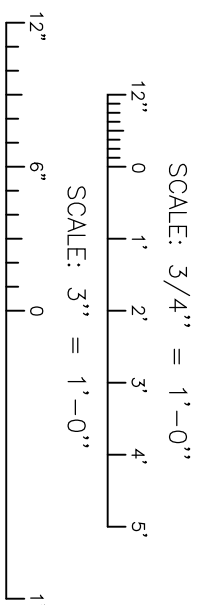
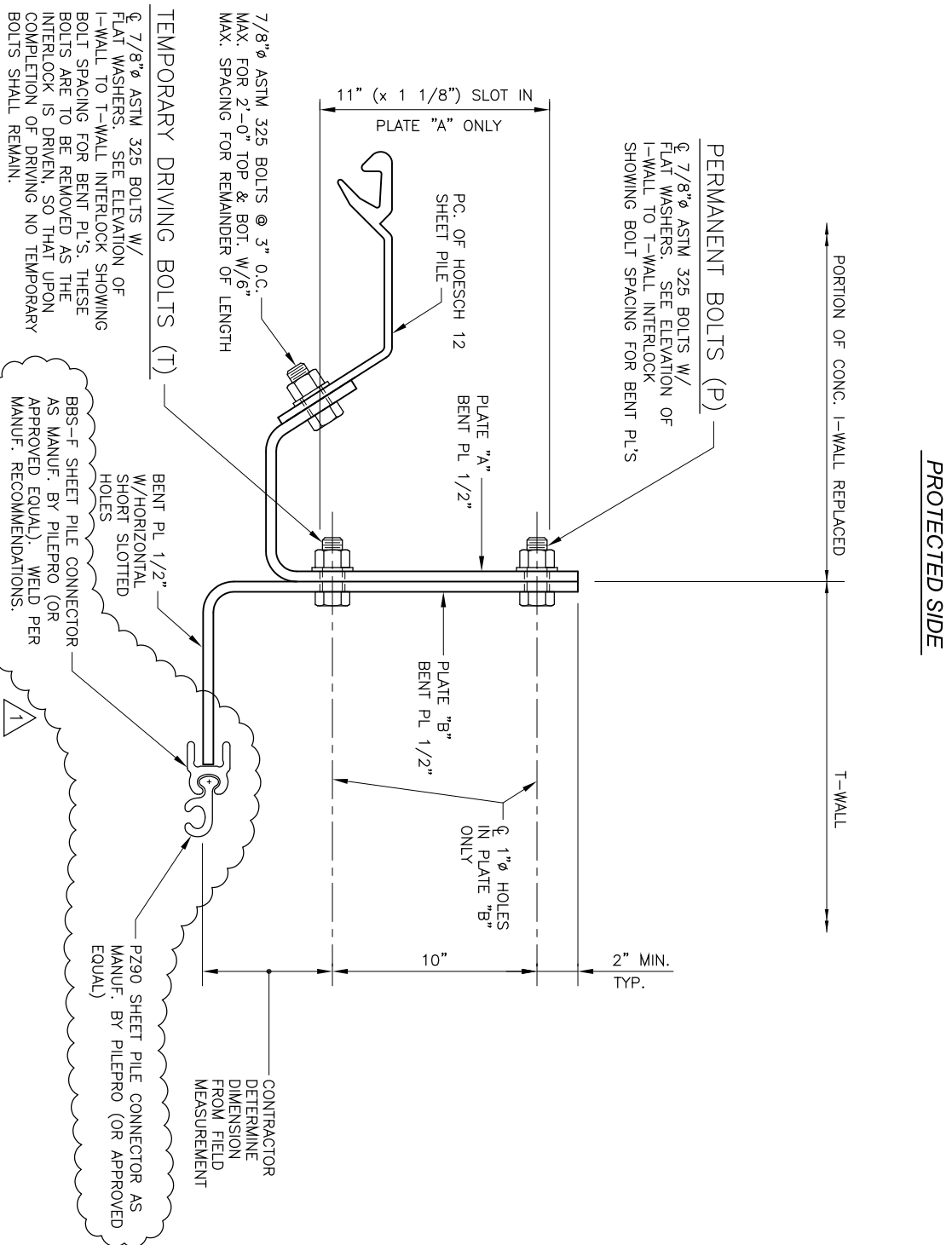
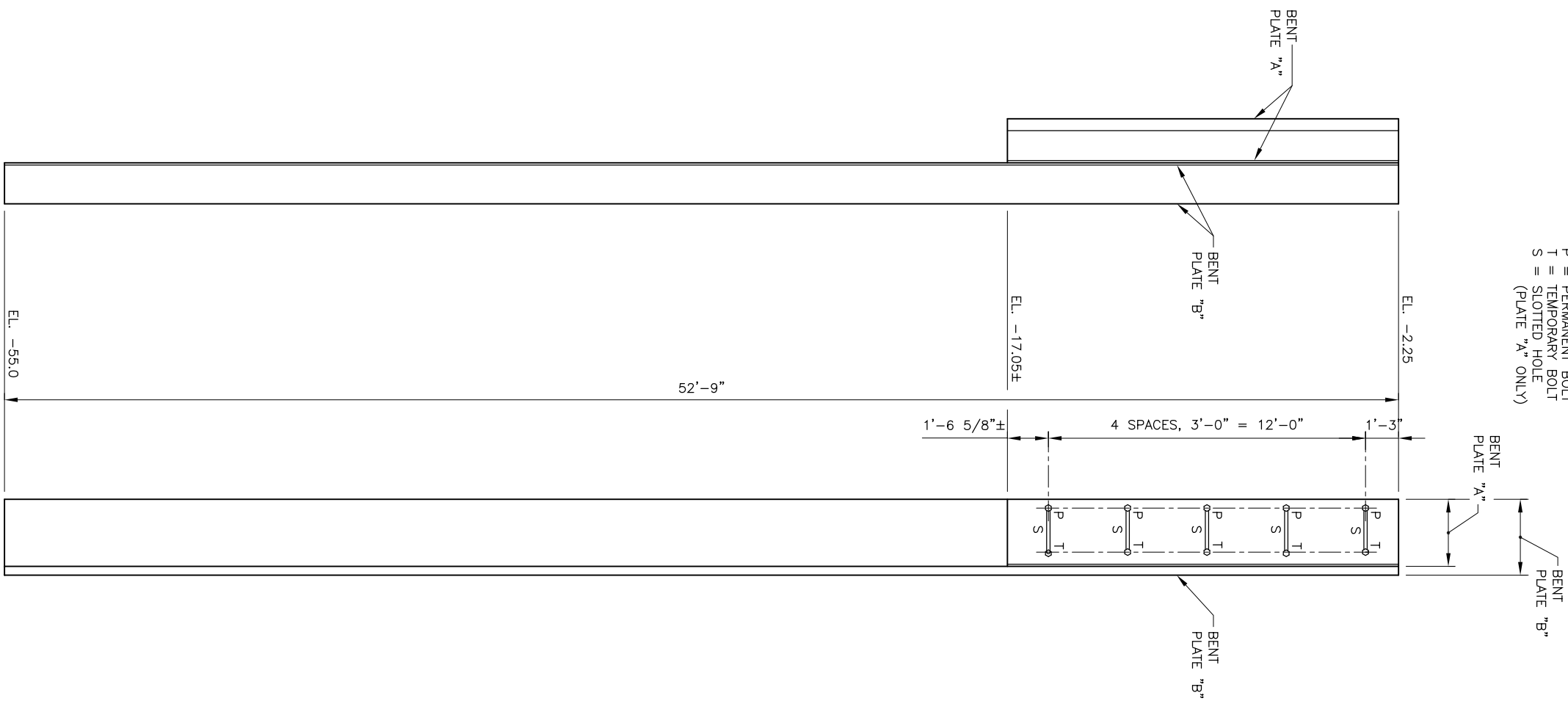
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
CORPS OF ENGINEERS  
NEW ORLEANS, LOUISIANA

DESIGNED BY: L H J	PLOT SCALE:  1	PLOT DATE:	DESIGN FILE NAME:	
CHECKED BY: L H J			SUBMITTED BY:	SOLICITATION NO.
DRAWN BY: L H J			LINFIELD, HUNTER & JONES, INC.	W912P8-06-R-0086
DATE: 12-30-05			DESIGN ENGINEER	

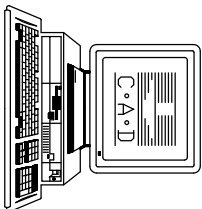
LAKE PONTCHATRAIN AND VICINITY  
17TH STREET CANAL FLOODWALL BREACH  
NEW ORLEANS, LOUISIANA  
CORROSION PROTECTION &  
REFERENCE BOLT DETAILS

FILE  
NUMBER

**LEGEND**  
P = PERMANENT BOLT  
T = TEMPORARY BOLT  
S = SLOTTED HOLE  
(PLATE "A" ONLY)

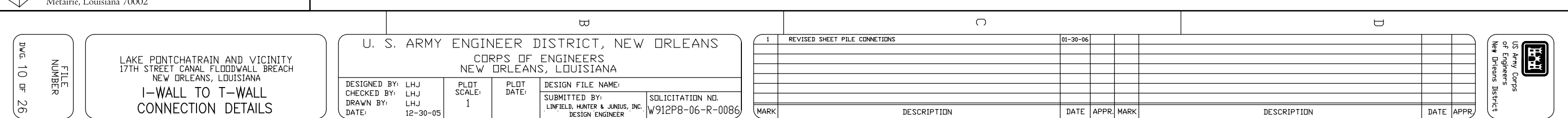
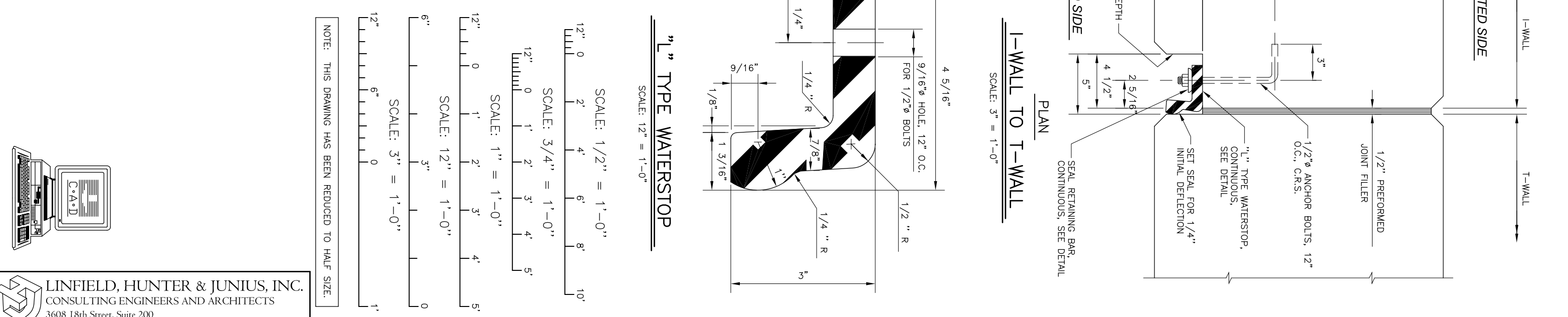
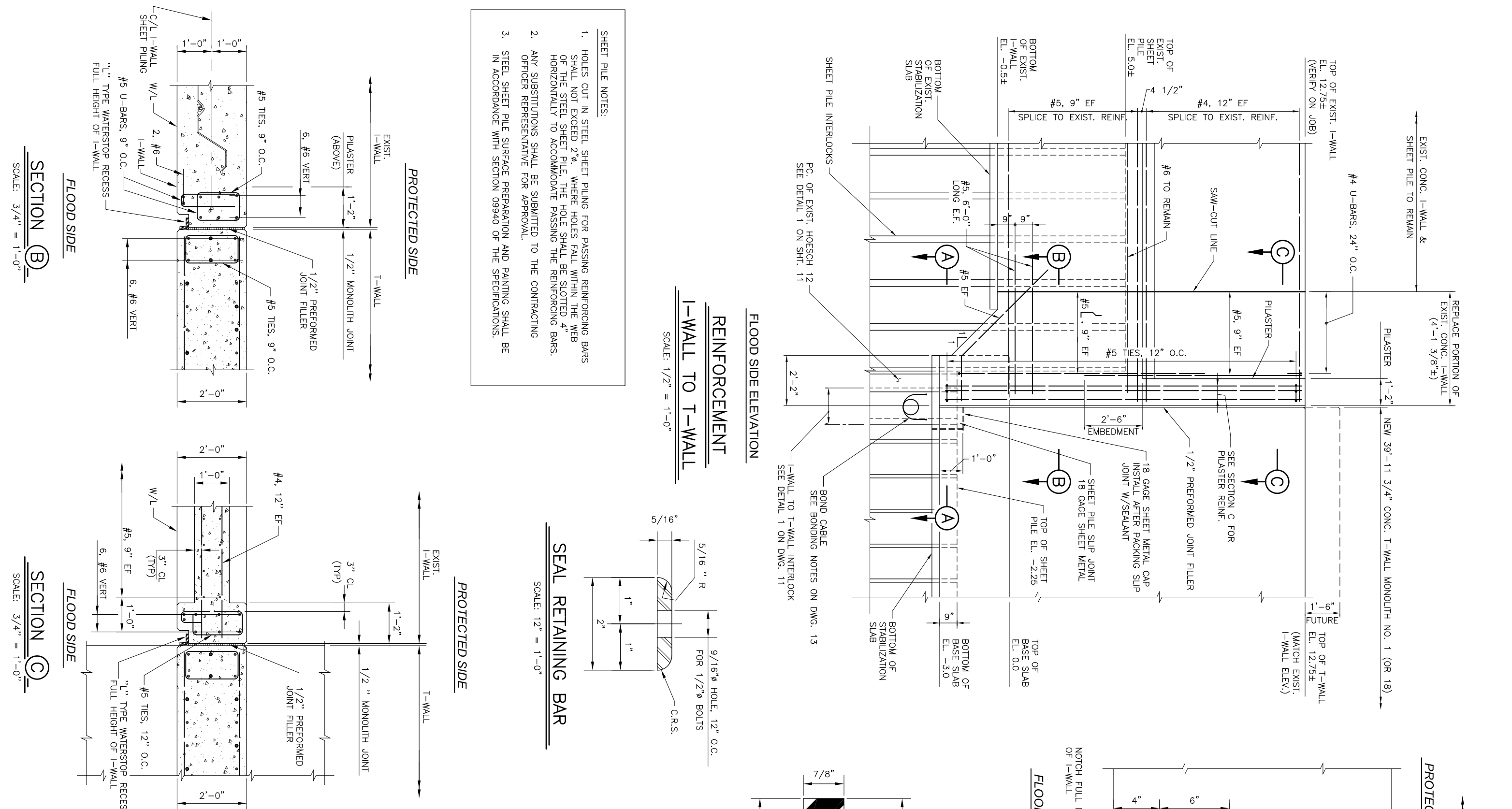
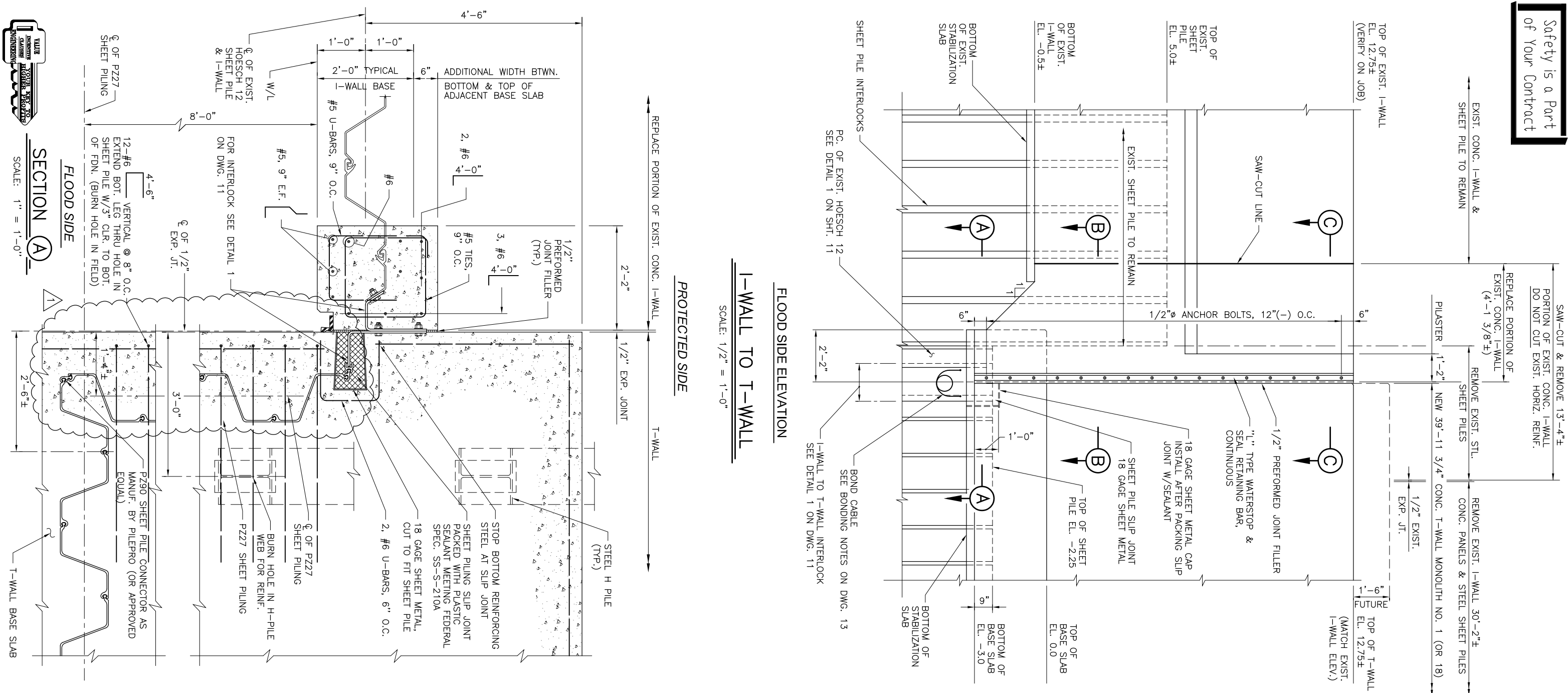


NOTE: THIS DRAWING HAS BEEN REDUCED TO HALF SIZE.



1	REVISED SHEET PILE CONNECTOR	01-30-06						
MARK	DESCRIPTION	DATE	APPR	MARK	DESCRIPTION	DATE	APPR	

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of Your Contract



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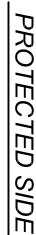
1'-6" (FUTURE)  
3" CLR.  
CHAMFER (TYP. POSED EDGES)  
" REINF. TO BE LLED WITH FUTURE EXTENSION (E.F.)



SCALE: 3/8" = 1'-0"



SCALE: 1" = 1'-0"



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## MONOLITH EXPANSION JOINTS

SCALE: 1" = 1'-0"

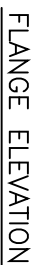
1. FOR GENERAL NOTES SEE DWG. 2.
2. 1-T" WALL MONOLITHS SHALL BE 3'-9" (±)  
FOR P227 SHIELD PILES AND 3'-9" ± 7/8" (±)  
FOR P225 SHIELD PILES.  
MONOLITHS SHALL BE CAST IN PLACE CONCRETE ON THE  
FLOORS OF THE EXISTING BUILDING. EACH  
MONOLITH SHALL END AT THE CENTER  
OF THE NEAREST SHIELD PILE INTERLOCK.
3. TYPICAL 1-T" WALL MONOLITH IS BASED ON  
A 1-T" WALL. IF OTHER WALL THICKNESS IS USED,  
MONOLITH SHALL BE SUBMITTAL. AGENCY/CONTRACTOR SHALL BE ADVISED. REVISED MONOLITH  
LAYOUT TO CONTRACTING OFFICER FOR REVIEW  
AND APPROVAL.



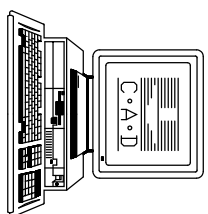
N.T.S.



## T.S.



N.T.S.

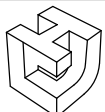
[illegible][illegible]

DESIGNED BY: LHJ	PLOT SCALE: 1	PLOT DATE:	DESIGN FILE NAME:
CHECKED BY: LHJ			SUBMITTED BY: LINDFIELD, HUNTER & JUNDUS, INC.
DRAWN BY: LHJ			SOLICITATION NO. W912P8-06-R-0086
DATE: 12-20-05			

### TYPICAL T-WALL MONOLITH

FILE  
NUMBER

DWG. 9 DF 26







- |    |
|----|
| DE |
| SU |
| LI |

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SOLICITATION NO.	W912P8-06-R-0086
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NUM\_FI

SCALE: 1" = 50'



